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PRESIDENT'S MESSAGE

Dear IPPS Members,

Greetings and best wishes for 2015.

This will be a special year for IPPS as this summer the 13th World Congress on Parasitic Plants will take place on July 5-10 in Kunming, China, for the first time in Asia. Please see the meeting section of this issue to find and confirm important information on the Congress such as registration and abstract submission dates. John Yoder with other members of scientific committee have been working extensively on the scientific program and you will find session chairs/modulators and keynote lectures on the tentative program. I encourage all of you to attend and enjoy great scenery, food, culture, and of course science.

I am pleased to announce the result of the recent IPPS elections. First of all, I thank everyone who participated in the election process and extend congratulations to Hinanit Koltai and Pilippe Simier for being elected to office.

Full list of IPPS officers is now:
President – Koichi Yoneyama (continuing)
Vice President – Julie Scholes (continuing)
Secretary – John Yoder (continuing)
Treasurer – Philippe Simier (newly elected)
Editor – Hinanit Koltai (newly elected)
Member at large – Ahmet Uludag (continuing)

We are very grateful to Philippe Delavault and Harro Bouwmeester for their excellent service and contributions to the society. Philippe Delavault completed his second round of term as Treasurer (8 years!) to keep IPPS bank account safely in France. Harro as Editor has helped Chris and Lytton increase volume and contents, and deepen the science in Haustorium. Any contributions or other ideas you have for Haustorium can now be sent to Hinanit as well as to Chris or Lytton.

There will be another important meeting in 2015, the 1st International Congress on Strigolactones which will be held on 1-6 March in Wageningen, the Netherlands. Harro Bouwmeester and colleagues are busy organizing the congress. Although strigolactones were first identified as germination stimulants for root parasitic weeds, now they are recognized as a novel class of plant hormones. The Congress will summarize old and new evolving aspects in biology, biochemistry, chemistry, and molecular biology of strigolactones. Details can be found at www.strigolactones.org.

I hope this year brings further new insights into parasitic plants.

See you in Kunming, China!

Koichi Yoneyama, IPPS President
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THE 13TH WORLD CONGRESS ON PARASITIC PLANTS

The 13th World Congress on Parasitic Plants (WCPP13) will be held on Sunday July 5 to Friday July 10, 2015 in Kunming, Yunnan Province, Southwest China. The venue will be Yunnan Dianchi Garden Resort Hotel & Spa. Further details can be found at the conference website http://wcpp13.csp.escience.cn/dct/page/65540. Abstract submission and online registration services are now available.

NOTE FROM THE NEW EDITOR

Dear all,

Initially, I would like to thank the members of the IPPS for the opportunity to fulfil the role of Editor for the IPPS, which I gladly accept.

I look forward to highlighting exciting new developments associated with Parasitic Plant research. The comparison between biological systems is, in my belief, a decided contributor to the better understanding of evolutionary and developmental processes. And it is through this comparison and integrative insight that I plan to present future developments. In the current issue I choose to highlight an exciting new development in the Parasitic Plant field of study, which relates to new findings about the exchange of signalling between host and parasite. Due to several new research studies we have gained better insight into both signals and receptors, thereby providing us a deeper understanding of the evolutionary process of this elaborate host-parasite communication.

I look forward to sharing with you my thoughts and insights, and hope to benefit the field of Parasitic Plants during these years of service.

Sincerely,
Hinanit Koltai, PhD
Editor, IPPS

STRIGOLACTONE AND KARRIKINS: SIGNALS AND THEIR RECEPTORS IN PLANT AND PARASITIC-PLANT GERMINATION

A marked advance was made in the last two years in our understanding of the signaling pathways associated with two classes of seed germination stimulators, strigolactones and karrikins. Back in 1966 strigolactones were first identified as crystalline, highly active germination stimulants of parasitic plants isolated from cotton-root exudates (Cook et al., 1966). In 1972, the structure of strigol was elucidated (Cook et al., 1972). Since then, numerous studies have shown that strigolactones are secondary metabolites, produced and exuded from the roots, which act as stimulators of seed germination in parasitic plants, including *Striga* and *Orobanche* (reviewed by Xie et al., 2010).
In plants, similarly to other plant hormones, strigolactones are sensed by a specific reception system (reviewed by Koltai, 2014). The F-box protein MAX2/D3/RMS4 component of this reception system was identified several years ago (Stirnberg et al., 2002; Ishikawa et al., 2005; Johnson et al., 2006). Significantly, *max2* mutants were hyposensitive to both Red and Far-Red light-induced seed germination, suggesting a role for MAX2 in this process (Shen et al., 2007).

In the past 2 years additional components of the strigolactone receptor and signaling pathway were discovered. These include D14, identified in rice (Arite et al., 2009). Crystallization of its ortholog from petunia (DAD2), showed it to be a protein with an α/β-hydrolase fold and a canonical catalytic triad with a large internal cavity. Moreover, DAD2 interacted in a yeast two-hybrid assay with the petunia MAX2A only in the presence of the synthetic strigolactone GR24 (Hamiaux et al., 2012). This interaction resulted in hydrolysis of GR24 by DAD2 (Hamiaux et al., 2012). The rice D14 was shown to bind to GR24 (Kagiyama et al., 2013) and to function as a cleavage enzyme of strigolactones (Nakamura et al., 2013). Moreover, dependent on D14- and D3/MAX2, strigolactones induce in rice proteasomal degradation of D53. D53 acts as a repressor of strigolactone signaling, and its degradation promotes axillary-bud outgrowth (Jiang et al., 2013; Zhou et al., 2013). However, neither canonical strigolactones nor AtD14 control *Arabidopsis* seed germination (Waters et al. 2012; Scaffidi et al., 2014).
Another signal for seed germination in plants is the strigolactone-similar class of compounds, the karrikins, originally found in forest-fire smoke (Flematti et al., 2004). Karrikins use a KAI2 (D14-LIKE)–MAX2-dependent pathway to regulate seed germination in *Arabidopsis*, as well as seedling growth and leaf and rosette development (Waters et al., 2012; Nelson et al., 2011; Waters et al., 2014) and require the F-box protein MAX2 (Nelson et al., 2011). However, karrikins in their pure form do not induce parasitic plant seed germination (Nelson et al., 2009; Scaffidi et al., 2014).

This strigolactone/ karrikins reception module seem to have been conserved during plant evolution (Waldie et al., 2014). Therefore, it was expected to find similar components of strigolactone reception also in parasitic plants. Indeed, Liu et al. (2014) found in *Striga hermonthica* that ShMAX2 is involved in strigolactone perception. This is since expression of *ShMAX2* in *Arabidopsis* was able to complement the *Arabidopsis max2-1* mutant phenotypes, including the root and shoot phenotype, and the response to strigolactones (Liu et al., 2014). However, *Striga* MAX2 could not complement the hyposensitivity to Far Red light for seed germination in *Arabidopsis max2-1*. It might be that ShMAX2 does not recognize the *Arabidopsis* KAI2, involved in Arabidopsis seed germination (Liu et al., 2014).

Together, these evidences suggest that karrikins and strigolactones operate by different mechanisms in their germination stimulation action (Nelson et al., 2009). This notion is fortified by the findings that parasitic plant germination activity is dependent on the part of the molecule attached to the D-ring (Zwanenburg et al., 2013), absent in karrikins (Chiwocha et al., 2009). Hence, the signal reception and/or response of seed germination might be different between parasitic plants and other plant species. Further studies may provide better insight into this subject and indicate some evolutionary changes evolved in parasitic plants in relation to plant signal recognition and response.

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Hinanit Koltai

RESEARCH ON PARASITIC PLANTS IN TROPICAL BRUNEI DARUSSALAM, BORNEO

Brunei Darussalam is a tiny, natural gas- and oil-rich Sultanate situated on the north-western edge of the island of tropical Borneo, an island which is also a part of Indonesia and Malaysia. About 54% of Brunei's land area remains covered by unlogged primary forest.

The Sultanate possesses a high level of biodiversity compared to other countries in the region, including parasitic plants. Surveys carried out researchers lead by Kushan Tennakoon, Linda Lim, Aywen Chak, Quang-Vuong Le and

Roshanizah Rosli, (based at the Universiti Brunei Darussalam) with their collaborators Lytton Musselman (Old Dominion University, USA) and Jay Bolin (Catawba College, USA) have recorded large populations of identified and unidentified mistletoes of the families Loranthaceae and Viscaceae (Chak, 2009) parasitizing hedgerow trees and tropical heath forest trees, dodders (*Cuscuta*) parasitizing grass patches and shrubby vegetation along the closely- knit waterways and *Cassytha* growing extensively in the sea-shore strand vegetation.

This rich parasitic flora in the Sultanate provides multiple avenues for research and draws international and local students for studies of biology, physiology and biochemistry of parasite-host associations in the tropics. So far, four BSc. (Honours) and three MSc. students have completed research projects on parasitic plants (biology and physiology of *Cassytha filiformis* and *Cuscuta australis*; phytochemistry of mistletoes and *Cassytha*) at the Universiti of Brunei Darussalam. One PhD project on the investigation of physiology and biochemistry of Bornean mistletoes as well as *Cuscuta* is currently underway.

An overview of recently completed studies on parasitic plants in Brunei Darussalam is given here:
The different levels of dependence of parasitic plants on associated hosts provide opportunities to study resilience and the physiological nature of parasite and host counterparts. The occurrence of the same parasitic plants parasitizing different host species, or different parasites growing on the same host species at similar sites in Brunei Darussalam (especially in tropical heath forests) aids the elucidation of mistletoe-host physiology under similar natural conditions. For example, in twelve mistletoe-host associations, Tennakoon *et al.* (2011) showed evidence of uncorrelated $\delta^{13}C$ values and significantly correlated $\delta^{15}N$ values between mistletoe and associated host, demonstrating the nitrogen dependence of mistletoe on its host. Le *et al.* (2014) evaluated the overall impact of hosts on tropical mistletoes by comparing photosynthetic capacity (light saturated photosynthesis, apparent quantum yield, light compensation point and instantaneous CO_2 assimilation rates) and photosynthesis-related characteristics (stomatal conductance, transpiration rate, water use efficiency, specific leaf area, leaf dry matter content, chlorophyll profiles) of four *Dendrophthoe curvata*-host associations. This study demonstrated that host-specific responses have driven the intra-specific variation in mistletoe physiology in aspects of photosynthesis and photosynthesis-related attributes.

Furthermore, Tennakoon *et al*. (2014) provided the first account of mineral nutrition and stable isotope relationships ($\delta^{13}C$ and $\delta^{15}N$) of two hyperparasitic *Viscum articulatum*- primary parasitic plant (*Dendrophthoe curvata* and *Macrosolen cochinchinensis)*-host-plant (*Mangifera Indica* and *Durio zibethinus*) associations found in Brunei Darussalam. The $\delta^{13}C$ partitioning patterns for hyperparasites, primary parasites and hosts were non-linear in contrast to linear patterns reported from the literature for autoparasitic mistletoe associations, demonstrating fundamental differences between nutrition in hyperparasites and autoparasites.

Other ongoing research includes the mineral accumulation and anti-oxidant properties of mistletoes (Yun 2014; Pin 2014, unpublished data), haustorial biology and the impacts of *Cassytha filiformis* on the growth and development of selected Bornean hosts (Rosli 2014, unpublished data) and the impact of *Cuscuta* on *Mikania* under drought stress (Le *et al*. unpublished data).

An interesting find is the paucity of flowering for *Cuscuta* that is widespread across the Sultanate in the vegetative state (Chak et al. 2010). In studies of 500 dodder populations in Brunei Darussalam over 7 years, only one produced flowers. DNA sequence analysis of internal transcribed spaces (ITS) of nuclear ribosomal RNA genes and chloroplast *trnL-F* intergenetic spacers (Bieber *et al.,* 2010) revealed that flowering and non-flowering dodders are the same species (*Cuscuta australis* Brown). The perennating mechanism originally described for *C. reflexa* (see Chak et al. 2010 and references therein) differs from the perennation of *C. australis* observed in Brunei, whereby the young perennating shoots originate directly from the central core of the *Cuscuta* vegetative body host pith instead of the 'concealed' absorbing tissues of haustoria embedded in host pith reported for *C. reflexa*. During the perennating stage of *Cuscuta*, several young shoots of varying lengths emerge at several points along the parental strands. Further elongation of these young shoots results in the fresh attack of any nearby potential host plants.

The dearth of flowering populations of *C. australis* in Brunei is still a mystery. Interestingly, ongoing studies reveal flowering and perennating *C. australis* populations with different total antioxidant capacity, phenolic and flavonoid contents suggesting the different potential medicinal constituent profiles (Le *et al.,* unpublished data).

Many questions related to biology and biogeography of angiosperm parasitic plants in Brunei remain. For example, identification of mistletoes in the canopies of tropical heath and mixed dipterocarp forests; what factors determine the distribution of mistletoes, *Cuscuta,* and *Cassytha* in Brunei Darussalam; why dodders growing here adopt different proliferative strategies (flowering and perennating); and how this trait affects the spread rate of dodders in Brunei Darussalam. In addition, the potential medicinal values of the

same parasitic plants associated with different hosts, and grown in contrasting habitats (seashore, tropical heath and mixed dipterocarp vegetations) of tropical Brunei Darussalam are yet to be unravelled. These questions need to be answered sooner than later before some of these pristine habitats in this tiny Sultanate are lost. Parasitic plant research at the University of Brunei Darussalam is supported by a research grant awarded to Kushan Tennakoon by the Brunei Research Council (UBD/S&T 8). Lytton Musselman acknowledges generous support of a Fulbright Specialist Award as well as the Mary Payne Hogan fund of Old Dominion University.

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BIOLOGICAL CONTROL OF *STRIGA* IN KENYA - UPDATE

The development of biological control of *Striga hermonthica* began in West Africa back in the 1990s using the plant pathogen *Fusarium oxysporum* f.sp. *strigae*. In 2009 the idea of using the same pathogen isolate (Foxy 2) was initiated and field trials, though subject to quarantine restrictions were initiated in Western Kenya. In 2011, this work was supported by the ISMA project managed by IITA and funded by BMGF. An update of the ISMA project in West Africa was recently reported in Haustorium (No 65, page 7, July 2014). Despite extensive trials the isolate Foxy 2 showed little effect on *Striga hermonthica* in Kenya when growing in association with maize (Avedi et al, 2014 – see Literature section below).

Collection of infected *Striga* plants with the visible characteristics of *Fusarium oxysporum* was undertaken in maize fields in Western Kenya in 2012. These pathogens were isolated and sent to University of Stellenbosch to the laboratories of Altus Viljoen where comparative analysis of Kenyan and West African isolates from *Striga* plants showed that the populations from the two regions were genetically different from each other.

Plate 1. The effect of the *Striga* biocontrol agent *Fusarium oxysporum* f. sp. *strigae* isolate FK3 on the development of *Striga* plants when pots were inoculated with *Striga hermonthica*. CR = control, LR = low rate, MR = medium rate and HR = high rate of FK3 in the growing medium.

One of the Kenyan isolates, FK3, was selected for trials to evaluate the effect on *Striga hermonthica* development in

pot-grown maize. Trials over two seasons have shown a significant reduction in *Striga* development when FK3 was planted at low, medium and high rates (Plate 1). The FK3 was grown on a rice based product, dried and ground, before being incorporated into the pot soil prior to planting at rates of 7.5×10^7 (low rate), 1.5×10^8 (medium rate) and 6×10^8 (high rate) CFUs per pot. The performance of the isolate FK3 has shown considerable promise and plans to register this as a biopesticide in Kenya are being evaluated. Maize cob and grain weight were moderately increased and stover weight more significantly

Henry Wainwright,The Real IPM Company (K) Ltd and Altus Viljoen, University of Stellenbosch, South Africa.

MISTLETOES AND MEDICINE: A PLEA FOR BETTER TAXONOMY

While reading some of the citations in Haustorium, I discovered a problem that, upon further examination, appears to be extensive. This involves the misidentification of mistletoes used in some biomedical studies. The high volume of publications is because, in some cases, research has demonstrated efficacy in treating serious human diseases such as hypertension, diabetes, epilepsy, and cancer.

The citations listed below that motivated me to write this were Ajani *et al*. (2014a, b) and Channabasava *et al.* (2014). I wish to state that I do not wish to single out these particular authors but am simply using them as examples of a pervasive problem. The authors use the name *Loranthus micranthus* (with no authority). If this were *L. micranthus* Hook. f., then this is a synonym for *Ileostylus micranthus* (Hook. f.) Tiegh. But *Ileostylus* is a mistletoe endemic to New Zealand that is highly unlikely to be the subject of these studies. In both cases the mistletoe was collected locally, in Nigeria and India, respectively. For the Nigerian mistletoe, a synonym exists with similar spelling: *Loranthus micrantherus* Engl. which is now correctly called *Englerina gabonensis* (Engl.) Balle. It is possible the mistletoe being used is *Englerina*, but this needs to be confirmed. Using the name *L. micranthus* for a mistletoe collected in India is more perplexing and is perhaps due to the unwise reliance on vernacular names.

About four years ago Chris Parker noticed this same error* and contacted an author working in Nigeria who also pointed out a similar problem on the misuse of the name *Viscum album* L. which does not occur in Nigeria. Despite these alerts, the practice of using incorrect names continues, even in recently published review articles.

In a search of my Endnote reference database that contains all of the citations listed in past Haustorium newsletters the name *Loranthus micranthus* was used in the following journals: African Journal of Biotechnology, American Journal of Pharmacology and Toxicology, Asian Journal of Biomedical and Pharmaceutical Sciences, Asian Pacific Journal of Tropical Medicine, Bio-Research, Current Research, Drug plants, European Journal of Medicinal Plants, Fitoterapia, International Journal of Pharma and Bio Sciences, Journal of Ethnopharmacology, Journal of Pharmacy and Pharmacology, Journal of Tropical Medicine, Pharmaceutical Biology, and Phytopharmacology and Therapeutic Values. I then searched for this binomial using Google Scholar and added the following journals: Biochemistry Research International, Current Research Journal of Biological Sciences, Evidence-Based Complementary and Alternative Medicine, Global Advanced Research Journal, Journal of Pharma and Bio Sciences, Journal of Pharmaceutical and Allied Sciences, Natural Product Research (Formerly Natural Product Letters), Pharmaceutical Biology, Phytochemistry Letters, Planta Medica, Research Journal of Medicinal Plant, and Scientia Africana. Although some of these journals are from developing nations, others are from the United States and Europe, demonstrating that this taxonomic problem is not being detected among a wide range of authors, journals, reviewers, and editors.

Englerina gabonensis Photo Jan Wieringa

So is my plea for better taxonomy really relevant to this line of scientific inquiry? Should authors, reviewers, editors, etc. be more stringent when reviewing the biological sources of

the chemical constituents used in such pharmacological and biomedical studies? I propose that poor plant taxonomy can inhibit scientific progress and this view is shared by others (see Boyle *et al*. 2013, BMC Bioinformatics 14:16). The ability of, say, a British scientist to accurately replicate a study conducted in India depends upon gaining access to the exact same plant material used in the original study. Were vouchers deposited in herbaria? Are these available (ideally digitally) for the scientific community to examine and evaluate as to the taxonomic name being used?

To avoid sounding too accusatory, I want to end by being more introspective. As a taxonomist, I must ask myself if I have I done a good job in providing to the scientific community and general pubic the tools needed to properly identify parasitic plants such as mistletoes. This is not an easy task as there are nearly 1000 species of Loranthaceae and 570 species of Viscaceae alone. As the author of the 'Parasitic Plant Connection' (http://www.parasiticplants.siu.edu/), I have attempted to make information about mistletoes readily accessible to everyone. But despite providing descriptions, images, literature, etc. there still does not exist a way to identify mistletoes worldwide in a 'one stop shopping mode'. Yes, taxonomic keys exist for all of these plants but they were published in many different places, often in sources that are difficult to obtain. Moreover, the botanical terminology used is often technical thus not particularly accessible to the non-specialist. Given that many modern curricula often do not emphasize basic plant taxonomy, maybe it is not unexpected to see increasing problems among the consumers of taxonomic information, such as ethno-pharmacology and other biomedical disciplines. I view this trend as a 'call to action', motivating me to develop new, innovative methods for mistletoe identification.

Daniel L. Nickrent

*Chris Parker regrets that having identified this problem 4 years ago he continued to repeat the mistake in several more recent issues. Apologies for causing undue excitement to *Ileostylus* buffs.

PRESS REPORTS

MSU professor wins grant for work in Africa

BOZEMAN – Women in one Kenyan village are fighting malnutrition with a toothpick, fungus and a clump of treated rice, says Montana State University professor David Sands.

Now women in 50 Kenyan villages can do the same with the $100,000 grant Sands just received from the Bill & Melinda Gates Foundation. The Gates Foundation announced Nov. 20 that Sands was one of more than 80 people this year to receive a Grand Challenges Explorations Grant to carry out their bold ideas for overcoming challenges to global health. As MSUs first recipient, Sands said he will share his 18-month grant with his Kenyan collaborators. 'It's very scary. Be careful what you dream for', Sands said, explaining that he now has to prove his discovery in a wider arena.

Fifty-five women from the village of Ekwanda have been testing his discovery since 2006, said Sands, a professor in the Department of Plant Sciences and Plant Pathology. Ekwanda is a small rural village north of Kisumu, the principal city in western Kenya. The women - most of them widows whose husbands have died from HIV, malaria, dengue fever or other causes - are responsible for growing food and providing an income for their families. However, a parasitic weed called *Striga*, or witchweed, kills 30 to 80 percent of their corn, millet and sorghum before the crops break the surface of the ground. The women spend 80 percent of their waking hours during weeding season (three to five months a year) weeding. 'If they can't produce corn, they starve,' Sands said.

Sands was inspired to help by his late brother, Dr. John P. Sands, Jr., who was chairman of the Urology Department and director of Surgical Services at the Naval Medical Center San Diego before retiring from the Navy in 2000. Later, while working in a hospital in west Kenya, John Sands realized that malnutrition was the number one problem behind his patients health issues. 'They were starving to death,' Sands said. To look for solutions, the brothers formed The Starfish Foundation about five years ago through the All Souls Episcopal Church of Point Loma in San Diego, and David Sands headed into the cornfields of Kenya. Perhaps he could find unhealthy *Striga* that would indicate the presence of a natural enemy or a weakness he might exploit. The search paid off when Sands discovered four strains of fungus among the weeds. After testing them in his MSU lab, he focused on improving one fungus to make it even more effective against *Striga*. Sands also developed a simple, inexpensive way to grow and plant the fungus. It involved growing the fungus in a petri dish. 'After three days, its fungal paradise,' Sands said. Then he placed about 50 wooden toothpicks in the petri dish so they were coated by fungus. After three days, he removed the toothpicks and set them aside to dry. The coated toothpicks will last five years if they stay wrapped, Sands said.

When the time came to plant corn, he placed one coated toothpick into a batch of boiled, cooled rice or sorghum, Sands said. After three days in a covered container, the rice turned pink and he had enough fungus to fight *Striga*. The

women of Ekwanda placed the rice into a hole on top of compost. Then they planted three kernels of corn on top of it. The women of Ekwanda helped prove that the fungus kills *Striga* without harming the environment, Sands said. They also demonstrated that the *Striga* biocontrol would save labor, increase crop yields and create more room to grow crops.

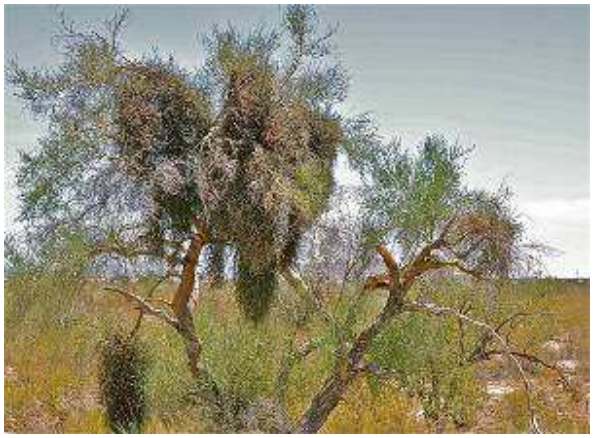
Sands shared his technique with Kenyan plant pathologist Sila Nzioka who came to MSU in 2011 to learn it from Sands. Nzioka works in the Kenya Agricultural Research Institute, the equivalent of the U.S. Department of Agriculture. Sands also described his discovery to the Gates foundation when he applied for a grant earlier this year. On the merit of that 1 ½-page application - without knowing Sands name, institution or research history, to avoid prejudice or preference - the Gates foundation awarded him a grant. It was his fifth attempt, Sands said. He encouraged other researchers to keep trying for such grants. He also urged MSU students to look for global problems they can help solve and warned them that problems are interwoven. In Kenya, for example, the women who tested his techniques not only faced malnutrition, but drought, the possibility of crop failure and socio-economic problems.

'I teach all my students this: If you want to work on a world-class problem, you have to work on four,' Sands said. 'They don't come in nice single packets. … You have to figure out how to weave through them all.' In addition to the grant from the Bill & Melinda Gates Foundation, Sands has received funding for his *Striga* research from other foundations, including the Charles A. and Anne Morrow Lindbergh Foundation. The Starfish Foundation paid for supplies, as well as the salary of Lydia Anderson of Missoula, who worked on the *Striga* project as an undergraduate student. Anderson graduated in 2012 with a bachelors degree in biology.

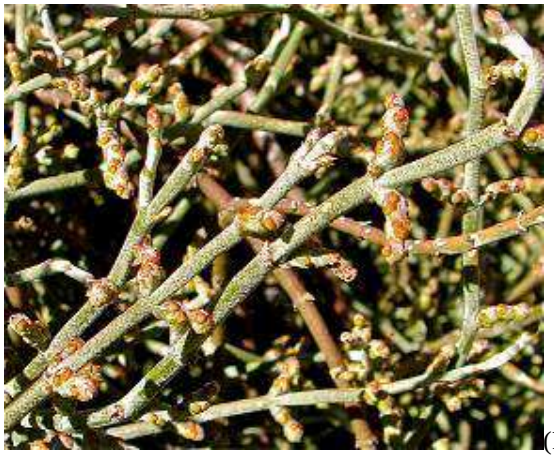
Evelyn Boswell, MSU News Service November 20, 2013.

Desert mistletoe: 'tree thieves' in the American Southwest (abridged)

This is the time of year when hanging mistletoe beckons loving couples to share a romantic moment. But, in the desert regions of northern Mexico and in the American Southwest, a very different type of mistletoe can be found. Check out these fascinating photos of desert mistletoe.


(Photo: Linda & Dr. Dick Buscher)

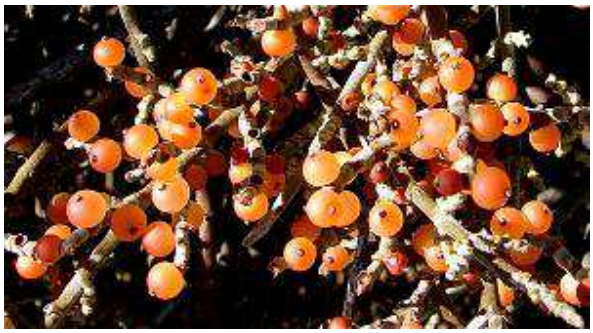
Desert mistletoe (*Phorodendron californicum*), unlike its commonly hung broadleaf cousins sold during this festive season, may not be so welcoming to those looking to steal a holiday kiss, since it grows in trees and shrubs covered with thorns. The desert mistletoe is a common perennial found in the Mojave and Sonoran Deserts, locations that are less than 4,000 feet (1,220 meters) in elevation. The plant is a hemi-parasite, which means it carries out photosynthesis in its many green stems while obtaining additional nutrients and water from the host plant upon which it grows. In these arid regions, the desert mistletoes' most common host plants are the desert legume trees and shrubs that grow there. The common varieties of mesquite, palo verde, and ironwood, *Olneya tesota*, trees as well as an occasional catclaw acacia, *Acacia greggii*, creosote bush, *Larrea tridentata* and the varieties of desert buckthorn shrubs play host to these slow-growing invaders


(Photo: Linda & Dr. Dick Buscher)

. Desert mistletoe is also known in some desert areas by the name mesquite mistletoe. In the trees and bushes of this desert region, desert mistletoe often looks like a dense nest or hive. In reality, desert mistletoe is a dense cluster of brittle,

jointed green stems that are primarily leafless. The clusters tend to hang down from the host and can grow to lengths of 36 inches (1 m) in six to eight years. This non-aggressive pathogen's leaves have been reduced to scales. The tiny, petal-less flowers bloom from January to March, and are known for producing a strong fragrance.

Shortly after blooming, the flowers produce an abundance of red fruit. The seeds of the fruit are covered with a gelatinous material that makes them extremely sticky. They are a favorite food for the birds of the desert that often get the sticky seeds stuck to their beaks or feet. As they wipe their beaks and feet clean on another branch, or even another tree, the mistletoe seeds now become planted on a new potential host. Since the seeds also have a tough seed coat, they easily pass through the bird's digestive system and become deposited onto new branches through their droppings.


(Photo: Linda & Dr. Dick Buscher)

The Phainopepla (*Phainopepla nitens*), commonly known as a Silky Flycatcher, is a small, desert bird that seems to have a special relationship with desert mistletoe. The black, male Phainopepla looks like a miniature cardinal. The mistletoe berries are the bird's main source of food in the winter. As such, the Phainopepla is one of the birds primarily responsible for the distribution of desert mistletoe seeds. (See separate story on this bird below)

Desert mistletoe seeds can germinate on any branch of the tree but its small, rootlike structures called haustoria can only penetrate young, thin bark. The haustoria grow in the microscopic spaces between the host plant cells, extracting water from the host xylem and nutrients from the host cells. Once the haustoria penetrates and begins to grow within a tree branch, it takes between two to three years for the first shoots of brittle stems to begin to grow. Once stem growth begins, it takes another year of maturing before the desert mistletoe begins to produce fruit. Botanists calculate that desert mistletoe plants can grow on their hosts for 60 to 70 years.

If desert mistletoe is a killer, it is surely a slow one. Death to a host tree usually occurs only when multiple clusters of mistletoe overtake the host tree, or when the host is weakened by other diseases or by a lack of water. Death of a host caused solely by mistletoe is very uncommon.

Man has long used the desert mistletoe for his survival. Both the indigenous Tohono O'odham and Seri people of this desert region ate the sweet mistletoe fruits that grew on mesquite, ironwood and acacia. They avoided the fruits that grew on desert buckthorn and palo verde, as they are bitter and were considered inedible. The Akimel O'odham, River Pima, crushed the berries and made a sweet pudding. The Seri people were also known to make a strong medicinal drink by boiling the plant's jointed stems. The relationship between the trees and shrubs of the Mohave and Sonoran Deserts and the desert mistletoe is very old. Over the millennia they all have learned to survive together in this very arid and harsh environment. Even though one uses the others for survival, all have come to deal with each other and are able to co-exist together.

Linda & Dr. Dick Buscher, Live Science, December 18, 2014.

Mistletoe depends upon bird

We might not have mistletoe were it not for a bird known as the phainopepla (*Phainopepla nitens*).

For a variety of reasons the phainopepla is one of our most interesting desert inhabitants. It breeds in the desert but can't be considered a resident since it departs at the beginning of summer. The male phainopepla is jet black, a color that absorbs more heat than any other - seemingly a poor adaptation for an animal spending a great deal of time in the desert. Finally, the phainopepla grows its own source of energy by planting mistletoe seeds.

Flocks, some of which contain 30 or 40 phainopeplas, return to the desert in October when temperatures begin to cool. Males establish territories around patches of mesquite, palo verde and related species but only those parasitized by mistletoe plants. Fruits of the mistletoe provide nourishment and moisture and are a critical component of the phainopepla's winter diet. Only the flesh of mistletoe berries, however, is actually digested. The mistletoe seeds pass through the bird's alimentary canal unharmed. Seed-laden droppings accumulate on branches lying beneath phainopepla perches and eventually a seed succeeds in germinating and pushing its rootlet into an aging stem. Ultimately, the new mistletoe plant produces berries eaten by phainopeplas, as well as other desert birds. In addition to mistletoe berries, flying insects are also captured and eaten. Insects are a

critical food resource especially during spring and summer when nestlings require a diet high in protein.

Courtship for the phainopepla begins as early as January and can last through April. One of the first indications of the breeding season is the building of a nest by the male. Nest construction is the male's responsibility alone and if his creation is accepted, a female takes up residence in his territory. The female lays from 2 to 5 speckled eggs and the young fledge within 5 weeks after the last egg is laid. Usually by the end of April, all young have left the nest. In late spring phainopeplas disappear from the desert until the following October.

For many years it was not clear where phainopeplas went. Researchers now know, however, that phainopeplas travel to less stressful climates at higher elevations or along the southern California coast. In these localities a second brood is raised giving phainopeplas the distinction of being the only bird to nest in two entirely different environments within a single year. They utilize the mild climate of the warm Sonoran Desert during winter, nest there in early spring when a burgeoning insect population is available for their young and then vacate the desert during the stressful months of summer. Late spring departure may partially explain how male phainopeplas can get away with being black in a desert environment. By way of contrast, ravens (which are also black) must endure intense solar radiation year-round since they are permanent desert residents.

Male phainopeplas can be distinguished from other birds by their jet black coloration, red eyes and white wing patches that can only be seen in flight. Females are gray with paler wing patches and brown eyes. Both sexes have a distinctive head crest. A short, soft, single whistle characterizes the Phainopepla's call.

Look for phainopeplas wherever large mistletoe plants are parasitizing cat's claw, palo verde and other perennials belonging to the Pea Family of plants.

James Cornett, The Desert Sun, December 6, 2014

Native mistletoe, Western Australia's Christmas tree, declining in urban areas

The Western Australian Christmas tree, a variety of mistletoe, has declined by 90 per cent in urban areas of Perth in the past 30 years. *Nuytsia floribunda* was dubbed the native Christmas tree by colonists because it bursts out in orange blooms in December. WA Wildflower Society's Bronwyn Keighery said the group had investigated where the trees grew. 'Ever since Europeans started clearing the state, they left the trees because they were so beautiful,' she told 720 ABC Perth. 'What we have been doing is looking at the trees that were left amongst houses and parkland and found that most of those have disappeared. 'The trees that were in patches of urban bushland were still there.'We think about 90 per cent of the trees that are not in bushland have disappeared. In bushland nearly 100 per cent have remained.'

Photo: *Nuytsia floribunda*, the Australian mistletoe, in bloom in Western Australia. (Flickr: Graeme Churchard)

Ms Keighery said the findings highlighted the importance of preserving even small areas of bushland in the metropolitan area. 'Places like the Inglewood Triangle and Kensington Bushland in south Perth, these patches are really important for keeping even common plants,' she said. The nuytsia have an additional Christmas association - the tree is also the world's largest variety of mistletoe. In European tradition, mistletoe is hung as Christmas decoration and people caught beneath are expected to kiss. They are hemiparasitic plants, and grow by attaching themselves to host plants and draw water and nutrition from the host. 'They grow from Kalbarri to Esperance, and have a number of Noongar words associated with them, including the name Mooja, and different groups of Noongars used them in different ways,' Ms Keighery said. 'It seems that the Noongar around Perth saw them as spirits of the dead and left them alone, while other Aboriginal groups pulled the roots up to eat that material, which is quite sweet.'

The WA Wildflower Society recently ran a treasure hunt to encourage Perth residents to take more notice of the Christmas trees, by attaching QR codes to 23 trees and awarding prizes of nuytsia seedlings for spotting them.

Emma Wynne **720 ABC Perth**
19 Dec 2014

WEEDSBOOK – THE AFRICAN WEED SCIENCE NETWORK

Weedsbook is a newly established online African Weed Science Network (www.afroweeds.org/network). It is a bilingual (English/French), free and open-access, online exchange platform for professionals working on weeds in Africa. It currently has more than 330 members from all over Africa and Europe. Weedsbook has been established to better inform weed scientists in the region and to enhance the outreach of their work.

Weedsbook contains discussion groups on topics such as weed identification, distribution and one on **parasitic weeds.** Members can discuss, ask questions or get assistance for instance with the identification of encountered weed species. Weedsbook provides recent relevant scientific publications and guides to weed identification, management recommendations, and information on research grants and scholarships and it enables members to share relevant news such as outcomes from their work (e.g. publications) and to upload or download photos, videos or other media.

Each member can generate a personal profile with information on their work, contact details and relevant internet links. It enables members to inform other members on their expertise and interests which in turn helps to link up with relevant new partners.

In summary, Weedsbook is easy to use, and it enables you to:

Enhance your network of peers

Share, communicate and learn

Get assistance or provide assistance on weed related queries

Be alerted on new weed science products, or announce your own products

Be informed (or inform your peers) on new funding opportunities, conferences and other relevant events

Membership is open and free. To join:

Go to www.afroweeds.org/network - click on 'Register' - complete the form - click on 'Register' - confirm the Weedsbook e-mail sent to your e-mail address

At first use: enter your user name and password and click on 'Login'

For help or other queries, please contact Dr Jonne Rodenburg (AfricaRice): j.rodenburg@cgiar.org

THESES

Nitrogen role in the plant - parasitic plant interaction: *Brassica napus* L. - *Phelipanche ramosa* (L.) Pomel.
Zachary Gaudin PhD Thesis, Nantes University, Nantes, France, 2013, 433p.

The broomrape *Phelipanche ramosa* L. Pomel is a parasitic weed widespread in Mediterranean Europe whose control is extremely difficult in agroecosystems. One of the biological features of this parasitic plant is that it germinates only in response to germination stimulants exuded by the roots of surrounding host plants. After attachment to the host root and connection to their vascular tissues, broomrape uptakes water and nutrients needed for their development. In France, the adaptation of this broomrape to tobacco, hemp and especially to winter oilseed rape (WOSR; *Brassica napus* L.) crops has become a major agricultural problem in the most infested areas. Considering the current recommendations of significant inputs reduction in sustainable agriculture (pesticides and fertilizers) and the importance of nitrogen nutrition for WOSR productivity, there was a need to investigate the impact of new crop management practices such as lower nitrogen inputs on the WOSR - broomrape interaction. Therefore, the aim of this thesis was to elucidate the role of nitrogen in this interaction. To achieve this, the work was organized around two distinct roles of this nutrient. First, we evaluated the effect of contrasting N fertilization regimes (and two associated minerals, sulfur and phosphorus) on the sensitivity of WOSR facing broomrape by analyzing the ability of WOSR roots to exude germination stimulants and to be parasitized by broomrape. In the second part of the study, through an approach of ^{15}N isotope tracing coupled to a primary metabolite profiling, a thorough analysis of the global N fluxes in the interaction was conducted. This led to the identification of the transferred compounds (amino acids, carbohydrates, organic acids and glucosinolates) from WOSR to broomrape and to the characterization of the metabolic pathways of these compounds used within the parasite. Therefore, this work required methodological developments allowing the rapid assessment of germination rate of broomrape seeds through a high-throughput process and the analysis of ^{15}N amino acids by UPLC-PDA-ESI-MS.

Thus, the beneficial effect of sulfur fertilization on the production or exudation in the rhizosphere of the main stimulant of broomrape seed germination, the 2-phenylethyl isothiocyanate (2-PEITC), has been demonstrated. Likewise, the decrease of WOSR susceptibility to broomrape, evaluated by the number and the total biomass of attached broomrapes, during a nitrogen deficiency, was also evidenced. Analysis of the overall N fluxes (^{15}N isotope tracing and amino acids profiling) highlighted the early role of supernumerary sinks represented by broomrapes for reduced nitrogen assimilated by the host WOSR. Indeed, the parasitic sink proved to be dominant at the end of the vernalization compare to the own

sinks of WOSR (in a susceptible WOSR genotype - broomrape interaction) particularly for foliar N newly assimilated during this period. Thus, this competition strongly inhibited the post-vernalization development of WOSR. Analysis of compounds transferred from the host and accumulated into the parasite highlighted the importance of glutamine as a long-distance nitrogen carrier, but also the role of WOSR specific compounds such S-methylcysteine sulfoxide (SMCSO) and glucosinolates in the interaction, and asparagine in N remobilization into the parasite.

These results open up interesting perspectives in terms of control methods compatible with existing agro-environmental directives, including the selection of more nitrogen efficient WOSR genotypes and an increased monitoring of sulfur fertilization in early culture (period of high WOSR susceptibility to broomrape). This work has also highlighted the influence of WOSR genetics on N source-sink control within the interaction (comparative study of susceptible and resistant WOSR genotypes). The study of WOSR mechanisms involved in the control of parasitic sink appears as one of the major perspectives because breeding for tolerance to face broomrape is becoming an increasingly important issue.

FORTHCOMING MEETINGS

The 1st International Congress on Strigolactones. 1-6 March, 2015. Wageningen, the Netherlands. 1st International Congress on Strigolactones we bring together scientists from these different disciplines to exchange ideas and knowledge on Strigolactones and to increase the solidarity and collaboration within the strigolactone community. For further information go to: http://www.strigolactones.org/

5th Intenational Conference on Alternative Methods of Crop Protection. Lille, France, 11-13 March, 2015. Sessions will include one on resistance and varietal selection. For information contact AFPP, 42 rue Raymond Jaclard, F-94140 Alfortville. Email afpp@afpp.net. Website www.afpp.net.

The 13th World Congress on Parasitic Plants. 5-10 July, 2015. Kunming, Yunnan Province, Southwest China. Further details can be found at the conference website http://wcpp13.csp.escience.cn/dct/page/65540.

GENERAL WEB SITES

For individual web-site papers and reports see LITERATURE

For information on the International Parasitic Plant Society, current issue of Haustorium, etc. see: http://www.parasiticplants.org/
For the 13th IPPS Congress see http://wcpp13.csp.escience.cn/dct/page/1
For past and current issues of Haustorium see also: http://www.odu.edu/~lmusselm/haustorium/index.shtml
For the ODU parasitic plant site see: http://www.odu.edu/~lmusselm/plant/parasitic/index.php
For the Strigolactone Congress see: www.strigolactones.org
For Dan Nickrent's 'The Parasitic Plant Connection' see: http://www.parasiticplants.siu.edu/
For the Parasitic Plant Genome Project (PPGP) see: http://ppgp.huck.psu.edu/
For information on the EU COST 849 Project (now completed) and reports of its meetings see: http://cost849.ba.cnr.it/
For information on the COST/STREAM conference see: http://streamisrael2013.wix.com/stream-israel-2013
For information on the EWRS Working Group 'Parasitic weeds' see: http://www.ewrs.org/parasitic_weeds.asp
For a description and other information about the *Desmodium* technique for *Striga* suppression, see: http://www.push-pull.net/
For information on the work of the African Agricultural Technology Foundation (AATF) on *Striga* control in Kenya, including periodical 'Strides in *Striga* Management' and 'Partnerships' newsletters, see: http://www.aatf-africa.org/
For Access Agriculture (click on cereals for videos on *Striga*) see: http://www.accessagriculture.org/
For information on future Mistel in derTumortherapie Symposia see: http://www.mistelsymposium.de/deutsch/-mistelsymposien.aspx
For a compilation of literature on *Viscum album* prepared by Institute Hiscia in Arlesheim, Switzerland, see: http://www.vfk.ch/informationen/literatursuche (in German but can be searched by inserting author name).
For the work of Forest Products Commission (FPC) on sandalwood, see: http://www.fpc.wa.gov.au (Search *Santalum*)
For 'Weedsbook' online African Weed Science Network, see: www.afroweeds.org/network

And for entertainment as well as instruction watch a video of the germination of *Cuscuta campestris* and attachment on chickpea, see http://youtu.be/ulFuIwqC9qo (with thanks to Yaakov Goldwasser).

LITERATURE

*indicates web-site reference only

Entries in bold are the editors' (but mainly one editor's) personal selection of the top ten items.

Abe, S., Sado, A., Tanaka, K., Kisugi, T., Asami, K., Ota, S., Kim, H.I., Yoneyama, K., Xie, X., Ohnishi, T., Seto, Y., Yamaguchi, S., Akiyama, K., Yoneyama, K., Nomura, T. 2014. Carlactone is converted to carlactonoic acid by MAX1 in *Arabidopsis* and its methyl ester can directly interact with AtD14 in vitro. Proceedings of the National Academy of Sciences of the United States of America, 111: 18084–18089. [In *Arabidopsis*, MAX1 enzyme oxidizes carlactone to carlactonoic acid (CLA) but not to strigolactone (SL). Methyl ester of CLA (MeCLA) but not CLA can interact with D14 protein, the receptor for SLs.]

Abu-Shall, A.M.H. and Ragheb, E.I.M. 2014. Management of *Orobanche crenata* using trap crops and *Phytomyza orobanchia* Kalt. in broad bean (*Vicia faba*) field in Egypt. Egyptian Journal of Biological Pest Control 24(1): 217-223. [Remarkably beneficial effects reported for in-row intercropping with radish, Egyptian clover, celery, and to a lesser extent garlic, flax and fenugreek with crop yields increased 2-4-fold and *O. crenata* emergence reduced 30-70% (though still at least 5-10 per bean plant). Release of 3 *P. orobanchia* per plant provided small additional benefit.]

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*Agne, M.C., Shaw, D.C., Woolley, T.J. and Queijeiro-Bolaños, M.E. 2014. Effects of dwarf mistletoe on stand structure of lodgepole pine forests 21-28 years post-mountain pine beetle epidemic in central Oregon. PLoS ONE 9(9): e107532. (http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0107532) [Confirming significant effects of *Arceuthobium americanum* in delaying recovery from mountain beetle damage.]

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and polyphenol oxidase in roots of tomato assumed to be responsible for increasing resistance to *O. ramosa*. But no data on the levels of infection with and without the treatments.]

Alemede, I.C., Fasanya, O.O.A. and Agbana, E.O. 2014. Physiological response of Savanna Brown (SB) does to treatment with mistletoe extract (*Phragmanthera nigritana*) and Clomid®.Journal of Biology, Agriculture and Healthcare 4(12): 114-117. [Concluding that split doses of 250 mg/kg *P. nigritana* extract administered twice in a day as a drench can be recommended for use (presumably to induce ovulation) since the effects were not deleterious to the does.]

Alemede, I.C., Fasanya, O.O.A. and Oke, A.O. 2013. Growth and reproductive performance of rabbits fed mistletoe leaves (*Phragmanthera nigritana*). Journal of Agriculture, Forestry and Social Sciences 11(1): 249-255. [Concluding that *P. nigritana* can be used to feed rabbit does without any deleterious effect on performance.]

Alemede, I.C., Ogunbajo, S.A., Adetutu, B.A. and Taiwo, H. 2014. Reproductive performance of rabbits (*Oryctolagus cuniculus*) fed mistletoe (*Tapinanthus bangwensis*) leaves from different host plants. Journal of Natural Sciences Research 4(10): 128-132. [*T. banguensis* from almond, shea butternut or carob trees could be fed to female rabbits without affecting their reproduction.]

Alimboyoguen, A.B., de Castro-Cruz, K.A., Shen ChienChang and Ragasa, C.Y. 2014. Chemical constituents of *Anacolosa frutescens*. Research Journal of Pharmaceutical, Biological and Chemical Sciences 5(5): 1189-1191 [Acetylaleuritolic acid and β-amyrin and a mixture of monounsaturated and saturated fatty acids identified in *A. frutescens* (Olacaceae).]

Amoako-Attah, I., Lowor, S.T., Akrofi, A.Y., Adu-Gyamfi, P.K., Owusu-Ansah, F., Assuah, M.K. and Kumi-Asare, E. 2014. Growth response of *Tapinanthus bangwensis* (Engl. and Krause, Danser) seeds *in vitro* and artificial infestation in the field. Journal of Agricultural Science (Toronto) 6(9): 71-80. [Laboratory and field studies with *T. bangwensis* confirmed that cocoa was susceptible, coffee was moderately susceptible and *Gliricidia sepium* and mango *were* non-hosts.]

Amri, M., Abbes, Z., Bouhadida, M. and Kharrat, M. 2014. First report of the parasitic plant *Phelipanche ramosa* on berseem clover (*Trifolium alexandrinum*) in Tunisia. Tunisian Journal of Plant Protection 8(2): 127-132.

Anamul Haque, Afrina Zaman, Motaher Hossain, Icha Sarker and Saiful Islam. 2014. Evaluation of antidiarrhoeal and insecticidal activities of ethanol extract and its fractions of *Dendrophthoe falcata* (L.) leaves. International Journal of Pharmaceutical Sciences and Research (IJPSR) 5(9): 3653-3663. [Some confirmation of antidiarrhoeal activity and toxicity to *Sitophilus oryzae* (Coleoptera).]

Araújo, A.A.R., Silva, P.R.R., Querino, R.B., da Sousa, E.P. and Soares, L L 2014. (Fruit flies (Diptera: Tephritidae) associated to native fruit of *Spondias* spp. (Anacardiaceae) and *Ximenia americana* L. (Olacaceae) and their parasitoids in the State of Piaui, Brazil.) (in Portuguese) Semina: Ciências Agrárias (Londrina) 35(4): 1739-1749.

Atawodi, S.E.O., Olowoniyi, O.D., Obari, M.A. and Ogaba, I. 2014. Ethnomedical survey of Adavi and Ajaokuta Local Government Areas of Ebiraland, Kogi State, Nigeria. Annual Research & Review in Biology 4(24): 4344-4360. [Including observations on *Cassytha filiformis*.]

Athiroh, N., Permatasari, N., Sargowo, D. and Widodo, M.A. 2014. Effect of *Scurrula atropurpurea* on nitric oxide, endothelial damage, and endothelial progenitor cells of DOCA-salt hypertensive rats. Iranian Journal of Basic Medical Sciences 17(8): 622-625. [Methanolic extract of *S. atropurpurea* is able to modulate total plasma nitrate/nitrite levels and diminish endothelial damage via increasing endothelial progenitor cells.]

Avedi, E.K., Ochieno, D.M.W., Ajanga, S., Wanyama, C., Wainwright, H., Elzein, A. and Beed, F. 2014. *Fusarium oxysporum* f. sp. *strigae* strain Foxy 2 did not achieve biological control of *Striga hermonthica* parasitizing maize in Western Kenya. Biological Control 77: 7-14. [An honest report on a careful study at 2 sites under quarantine conditions which failed to show any significant reduction of *S. hermonthica* by *F. oxysporum.* Quoting 'varying reasons for the disparities' between these and the results obtained elsewhere, but these are not explained in the abstract (see further Note above.]

Aybeke, M., Şen, B. and Ökten, S. 2014. *Aspergillus alliaceus*, a new potential biological control of the root parasitic weed *Orobanche*. Journal of Basic Microbiology 54(s1): S93-S101. [*A. alliaceus* apparently effective against *O. cumana* and safe when applied to sunflower seeds before planting.]

Badu-Apraku, B., Akinwale, R.O. and Oyekunle, M. 2014. Efficiency of secondary traits in selecting for improved grain yield in extra-early maize under *Striga*-infested and *Striga*-free environments. Plant Breeding 133(3): 373-380. [Concluding that 'ear aspect' should be included in the base index for selecting for improved grain yield of extra-early maize under *Striga* infestation, while the number of emerged *Striga* plants should be excluded.]

Baheti, D.G. and Kadam, S.S. 2014. Antiurolithiatic activity of different plants extracts on zinc disc implantation induced urolithiasis. Der Pharmacia Lettre 6(4): 201-207. [An extract of *Dendrophthoe elasti* showed significant improvement in urinary parameters along with prevention

of stone formation suggesting significant antiurolithiatic activity.]

Baird, I. R. C. 2014. A novel observation of putative aerial hemiparasitism in *Exocarpus aphyllus* (Santalaceae). Queensland Naturalist 52:48-52. [A large individual of *Exocarpus aphyllus*, which is typically a root hemiparasite, was seen growing from the branch of *Eucalyptus largiflorens*. The connection was not dissected to determine the structure of the haustorium.]

Balasubramanian, D., Lingakumar, K. and Arunachalam, A. 2104. Characterization of anatomical and physiological adaptations in *Cassytha filiformis* L. - an advanced obligate hemiparasite on *Morinda tinctoria* Roxb. Taiwania 59(2): 98-105. [A study in India showed that photosynthesis was very low in *C. filiformis* and reduced that of the host *M. tinctoria*.]

Barcelona, J. F., Manting, M. M. E., Arbolonio, R. B., Caballero, R. B. and Pelser, P. B. 2014. *Rafflesia mixta* (Rafflesiaceae), a new species from Surigao del Norte, Mindanao, Philippines. Phytotaxa 174:272-278. [The fourth *Rafflesia* species from Mindanao is named and described, bringing the total number for the Philippines to 12.]

Bellino, A., Alfani, A., Selosse, M.A., Guerrieri, R., Borghetti, M. and Baldantoni, D. 2104. Nutritional regulation in mixotrophic plants: new insights from *Limodorum abortivum*. Oecologia 175(3): 875-885. [Establishing that the mixotrophic orchid *L. abortivum* preferentially feeds on fungi in natural conditions, but employs compensatory photosynthesis to buffer fungal C limitations and allow seed development.]

Bellot, S. and Renner, S.S. 2014. Exploring new dating approaches for parasites: the worldwide Apodanthaceae (Cucurbitales) as an example. Molecular Phylogenetics and Evolution 80: 1-10. [Molecular and morphological data were used to revise the taxonomy of the family which now contains 2 genera (*Apodanthes* and *Pilostyles*) and 10 species. *Berlinianche* from Africa was lumped into *Pilostyles*.]

Bhan, S., Shrankhla, Mohan, L. and Srivastava, C.N. 2014. Bioefficacy of nanoencapsulated *Aspergillus flavus* and *Cuscuta reflexa* combination against anopheline and culicine larvae. International Journal of Pharmaceutical Research and Bio-Science 3(5): 481-496. [Apparently showing useful activity but not clear which component is the more important.]

Bhatt, P., Thodsare, N. and Srivastava, R.P. 2014. Phagostimulant activity of some botanicals to *Bombyx mori* Linn. The Bioscan 9(2): 625-628. [*Santalum album* among extracts showing activity on silkworm larvae.]

Bhatt, P., Thodsare, N. and Srivastava, R.P. 2014. Toxicity of some bioactive medicinal plant extracts to Asian army worm, *Spodoptera litura*. Journal of Applied and Natural Science 6(1): 139-143. [*Dendropthoe falcata* most active of several species. *Cuscuta reflexa* somewhat less so.]

Bianchini, A., Stratton, J., Weier, S., Cano, C. and Garcia, L.M. 2014. Use of essential oils and plant extracts to control microbial contamination in pet food products. Journal of Food Processing and Technology 5(8): 357. [Oil from *Santalum album* included but apparently not among those effective.]

Boulet, C., Molenat, D., Benharrat, H., Delavault, P. and Simier, P. 2013. (Response to branched broomrape (*Phelipanche ramosa* (L.) Pomel) of weeds for an integrated pest management.) (in French) In: Journées Internationales sur la Lutte contre les Mauvaises Herbes, 22e Conférence du COLUMA,.Dijon, France, 10-12 Décembre 2013: 122-135. [Forty-one weed species proved susceptible to *P. ramosa* mostly in Brassicaceae, Geraniaceae, Rubiaceae, Asteraceae and Apiaceae, with fewer in Polygonaceae, Papaveraceae and Primulaceae and none in Chenopodiaceae and Euphorbiaceae.]

Brand, J.E., Sawyer, B. and Evans, D.R. 2014. The benefits of seed enrichment on sandalwood (*Santalum spicatum*) populations, after 17 years, in semi-arid Western Australia. Rangeland Journal 36(5) 475-482. [A comprehensive study of natural populations of *S. spicatum* and the benefits of various management methods.]

Candia, A.B., Medel, R. and Fontúrbel, F.E.. 2014. Indirect positive effects of a parasitic plant on host pollination and seed dispersal. Oikos 123(11):1371-1376. [The presence of the mistletoe *Tristerix corymbosum* (Loranthaceae) might be responsible for the higher reproductive success showed by the parasitized fraction of *Rhaphithamnus spinosus* (Verbenaceae) populations.]

*** Cardoso, C., Charnikhova, T., Jamil, M., Delaux, P.M., Verstappen, F., Amini, M., Lauressergues, D., Ruyter-Spira, C. and Bouwmeester, H. 2014. Differential activity of *Striga hermonthica* seed germination stimulants and *Gigaspora rosea* hyphal branching factors in rice and their contribution to underground communication. PLoS ONE 9(8): e104201. (http://www.plosone.org/article/info%3Adoi%2F10.137) [Identifying a range of strigolactones and other compounds with varying activity on *Striga* germination, and hyphal branching, suggesting that it should be possible to find rice varieties able to stimulate mycorrhiza but still be low-stimulant for *Striga*.]**

Channabasava, Govindappa, M., Chandrappa, C.P. and Sadananda, T.S. 2914. *In vitro* antidiabetic activity of three fractions of methanol extracts of *Loranthus micranthus*, identification of phytoconstituents by GC-MS and possible mechanism identified by GEMDOCK method. Asian Journal of Biomedical and Pharmaceutical Sciences 4(34): 34-41. [Strong antidiabetic activity

confirmed in extracts of *L. micranthus* (?*Loranthus micrantherus* = *Englerina gabonensis*) in which octadecenoic is the main component.]

Chen JiHang, Wong HoiShan, Leung HoiYan;,Leong PouKuan, Chan WingMan and Ko KamMing. 2014. An ursolic acid-enriched *Cynomorium songarium* extract attenuates high fat diet-induced obesity in mice possibly through mitochondrial uncoupling. Journal of Functional Foods 9: 211-224. [Referring to *C. songaricum*?]

Chikezie, P.C. and Iheanacho, K.M.E. 2014. Comparative hypoglycemic property of aqueous and ethanolic extracts of *Viscum album* (mistletoe) and their effects on body and organ weights of diabetic rats (*Rattus norvegicus*). Pharmacognosy Communications 4(2): 13-19. [Aqueous superior to ethanolic extracts.]

Chinsembu, K.C., Negumbo, J., Likando, M. and Mbangu, A. 2014. An ethnobotanical study of medicinal plants used to treat livestock diseases in Onayena and Katima Mulilo, Namibia. South African Journal of Botany 94: 101-107. [*Ximenia americana* among species used to relieve eye infections in cattle, goats and sheep.]

Cho HwaJin, Na KookJoo, Kim DoWan, Choi YoungEarl, Ma JaeSook and Jeong InSeok. 2014. Chemical pleurodesis using a *Viscum album* extract in infants with congenital chylothorax. European Journal of Pediatrics 173(6): 823-826. [First trials of the intrapleural instillation of an extract of *V. album* (Abnobaviscum Q®) in two infants not responding to standard conservative management and thoracic duct ligation. Resulted in improvement in both children with no side effects related to the extract after 2 years and 9 months, respectively.]

Cimmino, A., Fernández-Aparicio, M., Avolio, F., Yoneyama, K., Rubiales, D. and Evidente, A. 2015. Ryecyanatines A and B and ryecarbonitrilines A and B, substituted cyanatophenol, cyanatobenzo[1,3]dioxole, and benzo[1,3]dioxolecarbonitriles from rye (*Secale cereale* L.) root exudates: Novel metabolites with allelopathic activity on *Orobanche* seed germination and radicle growth. Phytochemistry, 109: 57–65. [Ryecyanatine A (substituted cyanatophenol), ryecyanatine B (cyanatobenzo[1,3]dioxole), and ryecarbonitrilines A and B (benzo[1,3]dioxolecarbonitriles) were isolated from rye root exudates as allelochemicals which inhibit *Orobanche* seed germination elicited by GR24 and subsequent radicle growth. Ryecarbonitriline A induced seed germination of *O. cumana* but not of *O. crenata* or *O. minor*.]

Conran, J.G., Mildenhall, D.C., Lee, D.E., Lindqvist, J.K., Shepherd, C., Beu, A.G., Bannister, J.M. and Stein, J.K. 2014. Subtropical rainforest vegetation from Cosy Dell, Southland: plant fossil evidence for Late Oligocene terrestrial ecosystems. New Zealand Journal of Geology and Geophysics 57(2): 236-252. [Loranthaceae well represented in fossil flora from Late Oligocene, 25 million years ago.]

Cui DongBo. 2014. (The development of flavor dog sauce.) (in Chinese) China Condiment 39(6): 105-107. [The optimum recipe for flavourful dog food included 15% *Pedicularis grandiflora*!]

Dakskobler, I. 2014. Phytosociological description of *Quercus petraea* forest stands with *Chamaecytisus hirsutus* and *Erica carnea* in the Vipavska brda (southwestern Slovenia). Acta Silvae et Ligni 103: 1-20. [In this region *Q. petraea* is associated with *Loranthus europaeus*.]

Dembicz, I., Kozub, Ł. and Zaniewski, P. 2013. New locality of *Thesium ebracteatum* (Santalaceae) in Mazowsze Province. Fragmenta Floristica et Geobotanica Polonica 20(1): 133-136. [Recording a very small population of the rare and protected *T. ebracteatum*.]

Demirkan, H., Türkseven, S., Nemli, Y., Uludağ, A. and Kaçan, K. 2014. (Investigation on chemical control of broomrape (*Phelipanche ramosa* (L.) Pomel/*P. aegyptiaca* (Pers.) Pomel) in potato fields.) (In Turkish) Ege Üniversitesi Ziraat Fakültesi Dergisi 51(2): 201-208. [Reporting field trials from 2007 and 2008 in which useful selective control of *P. ramosa* in potato was achieved with repeated low doses of glyphosate (units not clear). Imazapic and rimsulfuron less effective.]

Dickinson, S.E., Olson, E.R., Levenson, C., Janda, J., Rusche, J.J., Alberts, D.S. and Bowden, G.T. 2014. A novel chemopreventive mechanism for a traditional medicine: east Indian sandalwood oil induces autophagy and cell death in proliferating keratinocytes. Archives of Biochemistry and Biophysics 558: 143-152. [Results suggest that a 'purified' extract from sandalwood (presumably *Santalum album*) may exert beneficial effects upon skin, reducing the likelihood of promotion of pre-cancerous cells to actinic keratosis and skin cancer.]

Dokuparthi, S.K., Nilanjana Banerjee, Ashish Kumar, Venogopal Singamaneni, Giri, A.K. and Sibabrata Mukhopadhyay. 2014. Phytochemical investigation and evaluation of antimutagenic activity of the extract of *Cuscuta reflexa* Roxb by Ames test. International Journal of Pharmaceutical Sciences and Research (IJPSR) 5(8): 3430-3434. [An extract of *C. reflexa* showed antimutagenic effects, counteractring the mutagenic effects of sodium azide and other compounds on *Salmonella typhimurium*.]

Dong, S.Q., Ma, Y.Q., Wu, H.W., Shui, J.F., Ye, X.X. and An, Y. 2013. Allelopathic stimulatory effects of wheat differing in ploidy levels on *Orobanche minor* germination. Allelopathy Journal 31(2): 355-366. [Apparently recording differences in trap-crop effect according to ploidy level of wheat but not clear from

abstract how significant the differences were, nor where the work was conducted.]

Dossou-Aminon, I., Loko, L.Y., Adjatin, A., Dansi, A., Elangovan, M., Chaudhary, P., Vodouhè, R. and Sanni, A. 2014. Diversity, genetic erosion and farmer's preference of sorghum varieties [*Sorghum bicolor* (L.) Moench] in North-eastern Benin. International Journal of Current Microbiology and Applied Sciences 3(10): 531-552. [Recording a wide variety of sorghum lines used by farmers, but also a worrying rate of loss of older varieties and the need for their conservation if problems of drought and *Striga* are to be adequately addressed in future.]

Dovala, A.C. and Monteiro, A. 2013. (Striga asiatica chemical control by seed coating imazapyr resistant maize hybrids.) (in Portuguese) Revista de Ciências Agrárias (Portugal) 36(4): 466-474. [Study in Angola confirming excellent control of *S. asiatica* and doubling of maize yield with use of IR maize hybrids ZM521, ZM523 e ZM625.]

Dovala, A.C. and Monteiro, A. 2014. (Management of *Striga asiatica* in maize in the Planalto Central of Angola - legumes and grass trap intercropping.) (in Portuguese) Revista de Ciências Agrárias (Portugal) 37(1): 80-88. [Apparently providing evidence for the benefits of *Tripsacum laxum* as a trap crop and of *Desmodium uncinatum*, *Cajanus cajan*, *Mucuna pruriens*, *Tephrosia* sp. and *Crotalaria* sp. as intercrops.]

Dovala, A.C. and Monteiro, A. 2014. (Nitrogen effect on *Striga asiatica* emergence in maize (Planalto Central of Angola).) (in Portuguese) Revista de Ciências Agrárias (Portugal) 37(1): 89-99. [Application of N at 90 kg/ha gave 90% reduction in *S. asiatica* but maize yield was highest at 60 kg/ha.]

Dozmorov, M.G., Yang, Q., Wu, W.J., Wren, J., Suhail, M.M., Woolley, C.L., Young, D.G., Fung, K.M. and Lin, H.K. 2014. Differential effects of selective frankincense (*Ru Xiang*) essential oil versus non-selective sandalwood (*Tan Xiang*) essential oil on cultured bladder cancer cells: a microarray and bioinformatics study. Chinese Medicine 9: 18. [Finding that, while frankincense oil elicited selective cancer cell death *via* NRF-2-mediated oxidative stress, *Santalum album* oil induced non-selective cell death *via* DNA damage and cell cycle arrest.]

Dugje, I.Y., Odo, P.E., Teli, I.A., Kamara, A.Y. and Asiedu, E.A. 2014. Evaluation of multi-stress tolerant maize varieties for sustainable intensification in northern Guinea Savanna of north eastern Nigeria. Maydica 59(2): 136-143. [EVDT 99-W STR and LNTP x LNP-WC3 among varieties showing reduced susceptibility to *Striga hermonthica* and satisfying farmers' criteria. Hence nominated for on-farm demonstration and subsequent adoption in the region.]

Durand-Gillmann, M., Cailleret, M., Boivin, T., Nageleisen, L.M., Davi, H., Bréda, N. and Peiffer, M. 2014. Individual vulnerability factors of silver fir (*Abies alba* Mill.) to parasitism by two contrasting biotic agents: mistletoe (*Viscum album* L. ssp. *abietis*) and bark beetles (Coleoptera: Curculionidae: Scolytinae) during a decline process. Annals of Forest Science 71(6): 659-673. [*A. alba* has been weakened by successive severe drought periods while *V. album* and bark beetles contribute actively to the the process of decline.]

Duroueix, F. and Guillet, T. 2013. (Chemical control of broomrape (*Phelipanche ramosa*) in winter rape.) (in French) In: Journées Internationales sur la Lutte contre les Mauvaises Herbes, 22e Conférence du COLUMA, Dijon, France, 10-12 Décembre 2013: 269-277. Best control of *P. ramosa* was achieved using an imazamox-tolerant varietiy with imazamox applied in October and February, or in October, November and February but the treatment had not at that time been registered.]

Ekeleme, F., Jibrin, J.M., Kamara, A.Y., Oluoch, M., Samndi, A.M. and Fagge, A.A. 2014. Assessment of the relationship between soil properties, *Striga hermonthica* infestation and the on-farm yields of maize in the dry savannas of Nigeria. Crop Protection 66: 90-97. [Recording *S. hermonthica* in all maize fields sampled and corresponding losses in maize yield. Concluding that the consistent correlation with low soil fertility indicates this should be the main thrust of any control programme.]

Ermakov, N., Larionov, A., Polyakova, M., Pestunov, I. and Didukh, Y.P. 2014. Diversity and spatial structure of cryophytic steppes of the Minusinskaya intermountain basin in Southern Siberia (Russia). Tuexenia, 2014, 34, 431-446. [Noting occurrence of *Pedicularis lasiostachys.*]

Fan RongHua, Ma YuYing, Yuan HongXia, Zhang YongZhi, Wei BinBin, Zhao YunLi and Yu ZhiGuo. 2014. A new flavonoid glycoside and four other chemical constituents from *Viscum coloratum* and their antioxidant activity. Heterocycles 89(6): 1455-1462.

Farah, A.F. and Ibrahim, S.M. 2014. Anatomical studies on compatibility and incompatibility of some Solanaceous plant species to field dodder (*Cuscuta campestris* Yuncker). American Journal of Plant Sciences 5(15): 2426-2430. [Showing that *C. campestris* successfully invaded tissues of hot pepper and tobacco but failed in the tissues of tomato and potato.]

Fernández-Aparicio, M., Kisugi, T., Xie XiaoNan, Rubiales, D. and Yoneyama, K. 2014. Low strigolactone root exudation: a novel mechanism of broomrape (*Orobanche* and *Phelipanche* spp.) resistance available for faba bean breeding. Journal of Agricultural and Food Chemistry 62(29): 7063-7071. [Confirming that roots exudates from resistant faba bean lines Quijote and Navio failed to stimulate germination of *O. crenata, O. foetida* and *P. aegyptiaca,* a novel finding for faba bean.]

Ferreira, P.P.A., Dettke, G.A., Waechter, J.L. and Miotto, S.T.S. 2014. *Cuscuta taimensis* (Convolvulaceae, Cuscuteae), a new species from South America. Brittonia 66(3): 269-273. [Describing *C. taimensis*, similar to *C. racemosa*, but having oblong to elliptic calyx lobes and a circumscissile capsule.]

Fikadu Erenso, Melesse Maryo and Wendawek Abebe. 2014. Floristic composition, diversity and vegetation structure of woody plant communities in Boda dry evergreen Montane Forest, West Showa, Ethiopia. International Journal of Biodiversity and Conservation 6(5): 382-391. [Vegetation types recognised included *Osyris quadripartite-Rhus ruspolii*.]

Fotso, Mbouobda, H.D., Tita, M.A., Muyang, R.F., Belfiang, N.D. and Omokolo, N.D. 2014. Parasitism of plum tree (*Dacryodes edulis*, Burseraceae) by Loranthaceae in the locality of Fotetsa-Dschang (West-Cameroon). African Journal of Agricultural Research 9(29): 2255-2262. [Recording abundant occurrence and serious damage from *Tapinanthus apodanthus, T. oleifolius, Phragmanthera capitata* and *Viscum congolense* on *D. edulis*.]

Freudenstein, J.V. and Barrett, C.F. 2014. Fungal host utilization helps circumscribe leafless Coralroot orchid species: an integrative analysis of *Corallorhiza odontorhiza* and *C. wisteriana*. Taxon 63(4): 759-772' [Studying the fungal associates of *C. odontorhiza* and *C. wisteriana* and concluding that eastern and western populations of the latter are distinct in utilizing different fungal families, Russulaceae and Thelephoraceae.]

Gibot-Leclerc, S., Reibel, C. and Legros, S. 2014. First report of branched broomrape (*Phelipanche ramosa*) on celeriac (*Apium graveolens*) in Eastern France. Plant Disease 98(9): 1286. [Celeriac grown 4 years after hemp.]

Giuliano, G., O'Connor, S.E. and Brutnell, T.P. 2014. Plant carotenoids: genomics meets multi-gene engineering. Current Opinion in Plant Biology 19: 111-117. [A comprehensive review.]

Glardon, O.J., Pache, V., Magnenat, A.L., Pin, D. and Parvis, A. 2014. *Viscum album L.* (Iscador®) in the cat: tolerance, adverse reactions and indications. SAT, Schweizer Archiv für Tierheilkunde 156(8): 381-388. [Subcutaneus mistletoe injections resulted in no significant adverse reactions in 18 cats treated.]

González, A.M., Fabián Popoff, O. and Salgado Laurenti, C. 2014. Structure of staminate flowers, microsporogenesis, and microgametogenesis in *Helosis cayennensis* var. *cayennensis* (Balanophoraceae). Anales del Jardín Botánico de Madrid 70(2): 113-121. [Concluding that despite the extreme reduction of flowers, the anatomic characteristics are perfectly normal and functional, and thus highly similar to other Helosidoideae. Sterile parts of flowers and inflorescence maintain the same distinctive and aberrant features of the plant vegetative parts.]

Granot, G. and Grafi, G. 2014. Epigenetic information can reveal phylogenetic relationships within Zygophyllales. Plant Systematics and Evolution 300(8): 1819-1824. [*Krameria cistoidea* showed the presence of H3K9me2 (a methylated lysine of histone protein H3) which is unlike other tested genera in Zygophyllaceae which lack this protein. The authors use these data to question the placement of Krameriaceae in Zygophyllales.]

Guerra, T.J., Galetto, L. and Silva, W.R. 2014. Nectar secretion dynamic links pollinator behavior to consequences for plant reproductive success in the ornithophilous mistletoe *Psittacanthus robustus*. Plant Biology 16(5): 956-966. [Observations on the relatively poor success of humming birds in the pollination of *P. robustus* in Brazil.]

Guo HuiMin, Zhang JingZe, Gao WenYuan, Qu Zhuo, andLiu ChangXiao. 2014. Anti-diarrhoeal activity of methanol extract of *Santalum album* L. in mice and gastrointestinal effect on the contraction of isolated jejunum in rats. Journal of Ethnopharmacology 154(3): 704-710. [Results support the traditional use of *S. album* as an anti-diarrhoeal treatment.]

Haliniarz, M. and Kapeluszny, J. 2014. (Rare species of calcicole flora in the segetal communities in the Lublin region.) (in Polish) Annales Universitatis Mariae Curie-Skłodowska. Sectio E, Agricultura 69(1): 11-23. [*Melampyrum arvense* and *Odontites verna* among species recorded.]

Hanafy, A., and Badr, J.M. 2014. Anti-hyperglycaemic effect of *Phragmenthera austroarabica* A.G.Mill. & J.A.Nyberg extract in streptozotocin-induced diabetes in rats. Natural Product Research 28(24): 2351-2354. [Suggesting some promise for the treatment of type 2 diabetes with *Phragmanthera austroarabica*.]

Háznagy-Radnai, E., Wéber, E., Czigle, S., Berkecz, R., Csedő, K., Hohmann, J. and Felinger, A. 2014. Identification of iridoids, flavonoids and triterpenes from the methanolic extract of *Melampyrum bihariense* A. Kern. and the antioxidant activity of the extract. Chromatographia 77(17/18): 1153-1159. [Finding antioxidant activity, with iridoids, flavonoids and triterpene acids as assumed bioactive constituents.]

He SongMei, Liu Xia, Wu YuLiang (et al). 2014. (Impact of *Boschniakia rossica* ethanol extract on hepatic expression of inflammatory cytokines in rats with NAFLD.) (in Chinese) Journal of Practical Hepatology (Shiyong Ganzangbing Zazhi) 17(5): 519-522. [Recording improved liver function and collagen deposition in rats with NAFLD by down regulation of NF-KB/p65 and inflammatory cytokines in the liver.]

Hohl, A. and Sebastian, J. 2014. *Sapria himalayana* Griffith, an endangered species from the Mishmi Hills, Dibang Valley, Arunachal Pradesh. Indian Forester 140(4): 433-

434. [Describing *S. himalayana* (Rafflesiaceae) a total root parasite of *Cissus elongata* and other species of family Vitaceae threatened with extinction; sighted only a few times since its first discovery. It is proposed for conservation as a flagship species in the Namdapha biosphere reserve.]

Houngbedji, T., Nicolardot, B., Shykoff, J. and Gibot-Leclerc, S. 2013. (Study of the infection of the parasitic plant *Rhamphicarpa fistulosa* in rice in Togo.) (in French) In: Journées Internationales sur la Lutte contre les Mauvaises Herbes, 22e Conférence du COLUMA,.Dijon, France, 10-12 Décembre 2013: 107-112. [A survey in 2012 showed that *R. fistulosa* was found in 80% of the 33 lowland rice crops visited in Togo. Farmers use weeding and chemical fertilizers but always at lower input rates than national standards.]

Hu GaoSheng, Jia JingMing and Kim DohHoon. 2014. Effects of feeding tyrosine and phenylalanine on the accumulation of phenylethanoid glycosides to *Cistanche deserticola* cell suspension culture. Chinese Journal of Natural Medicines 12(5): 367-372.

Hussain, S., Güzel, Y., Pezzei, C., Rainer, M., Huck, C.W. and Bonn, G.K. 2014. Solid-phase extraction of plant thionins employing aluminum silicate based extraction columns. Journal of Separation Science 37(16): 2200-2207. [The study involved *Viscum album*, wheat and barley.]

***Ibdah, M., Dubey, N.K., Eizenberg, H., Dabour, Z., Abu-Nassar, J., Gal-On, A. and Aly, R. 2014. Cucumber Mosaic Virus as a carotenoid inhibitor reducing *Phelipanche aegyptiaca* infection in tobacco plants. Plant Signaling and Behavior 9(8): e32096. [Showing that infection of the tobacco host by cucumber mosaic virus reduced β-carotene and hence strigolactone production and hence *P. ramosa* infection, and suggesting attenuated strains of CMV could perhaps be effective control agents.]**

Ibrahim, J.A., Egharevba, H.O., Iliya, I., Tarfa, F. and Ayodele, A.E. 2014. Chemical profiles as chemotaxonomic tools for Loranthaceae in Nigeria. African Journal of Plant Science 8(7): 343-352. [Studies on 7 unspecified Loranthaceae in Nigeria suggest that differences in chemical profiles could be useful as taxonomic tools.]

Idris, K. 2014. Residual effects of five *Desmodium* species on *Striga hermonthica* (Del.) Benth incidence on a subsequent sorghum in Sudan. Persian Gulf Crop Protection 3(1): 25-32. [Field experiments were planted to sorghum following cropping with *Desmodium* species. The abstract suggests *D. dichotomum* and *D. tortuosum* resulted in increased grain yield, but results variable and of dubious significance.]

Idris, K.I, Khan, Z.R. and Babiker, A.G.E. 2013. Influence of *Desmodium* species root exudates on *Striga hermonthica* (Del.) Benth and *Orobanche ramosa* L. germination. Persian Gulf Crop Protection 2(4): 7-14. [Reporting negligible germination of *S. hermonthica* from undiluted exudates of *D. uncinatum*, *D. intortum*, *D. tortuosum*, or *D. dichotomum*, while there was significant germination from *D. distortum* (in figure labelled *D. tortuosum*). No germination of *O. ramosa* by any *Desmodium* sp. Results included very variable results with GR24.]

Ifeanyi, F.O., Richard, C.E. and Effiong, U.E. 2014. Assessment of some toxic metal concentrations in selected ready-to-use medicinal plant roots and stem barks in Ibadan, Nigeria. Journal of Scientific Research and Reports 3(3): 427-436. [Confirming that the levels of toxic metals were acceptable in a range of medicinal products studied including *Olax subscorpiodea*.]

Ijoyah, M.O. 2014 Maize-soybean intercropping system: effects on *striga* control, grain yields and economic productivity at Tarka, Benue State, Nigeria. International Letters of Natural Sciences 14: 69-75. [Intercropping maize with soyabean reduced *Striga hermonthica* numbers by over 50% and increased maize and total crop yield.]

Itta, C.Z., Magani, E.I. and Ahom, R.I. 2014. Screening of cowpea genotypes for their reactions to *Alectra vogelii* (Benth.) in the Southern Guinea Savanna of Nigeria. Journal of Natural Sciences Research 4(15): 38-44. [Confirming varieties IT97K-499-35, IT98K-573-1-1, IT03K-338-1, IT98K-205-8 and UAM 11D-24-55-3 to be resistant to *A. vogelii*.]

Jamil, M., Charnikhova, T., Tahira Jamil, Zahid Ali, Mohamed, N.E.M.A., van Mourik, T. and Bouwmeester, H.J. 2014. Influence of fertilizer microdosing on strigolactone production and *Striga hermonthica* parasitism in pearl millet. International Journal of Agriculture and Biology 16(5): 935-940. [Confirming that increasing doses of di-ammonium phosphate decreased stimulant exudation and, in pot experiments, greatly reduced infestation by *S. hermonthica* in millet.]

Jestin, C., Molenat, D., Boulet, C., Bamme, B. and Leflon, M. 2013. (Impact of catch and non-host crops in cropping systems to control branched broomrape) (in French) In: Journées Internationales sur la Lutte contre les Mauvaises Herbes, 22e Conférence du COLUMA, Dijon, France, 10-12 Décembre 2013: 113-121. [Flax, maize and sunflower among crops with potential as trap crops for control of *Phelipanche ramosa* in rapeseed in France.]

Jun RuiHong, Chen GuiLin, Li MeiJia and Li Wei 2014. (Effect of different resistant sunflower varieties root exudates on germination of *Orobanche cumana* seeds.) (in Chinese) Acta Botanica Boreali-Occidentalia Sinica 34(7): 1397-1403. [Results suggest that the 'immune' variety MGS may have some inhibitory components in its root exudates.]

Kalinowski, P. 2013. (Rare vascular plants of the Podlasie Nadbużan´skie region (eastern Poland) - Part 1. Grassland, meadow and wetland plants.) (in Polish) Fragmenta Floristica et Geobotanica Polonica 20(1): 361-377. [*Melampyrum cristatum* and *Pedicularis palustris* among 'most valued' new findings.]

Kaminski, L.A., Mota, L.L. and Freitas, A.V.L. 2014. Larval cryptic coloration and mistletoe use in the metalmark butterfly *Dachetola azora* (Lepidoptera: Riodinidae). Entomologica Americana 120(1/2: 18-23. [Describing *D. azora* on a *Struthanthus* sp. in Brazil.]

Kang SeokYong, Jung HyoWon, Lee MiYoung, Lee HyeWon, Chae SeongWook adn Park YongKi. 2014 Effect of the semen extract of *Cuscuta chinensis* on inflammatory responses in LPS-stimulated BV-2 microglia. Chinese Journal of Natural Medicines 12(8):573-581. [A range of detailed results suggest that extracts of the seeds of *C. chinensis* have potential in the treatment of brain inflammation.]

Kartika, R., Barus, T., Surbakti, R. and Simanjuntak, P. 2014. Structure characterization of alkaloid scorodocarpines derivative from fruits of *Scorodocarpus borneensis* Becc (Olacaceae). Asian Journal of Chemistry 26(18): 6047-6049. [Typtamine-type alkaloids dehydroxyl scorodocarpine and scorodocarpine B isolated from the fruits of *S. borneensis* (Olacaceae).]

Karunakar Hegde, Deepak, T.K. and Kabitha, K.K. 2014. Hepatoprotective potential of hydroalcoholic extract of *Santalum album* Linn. leaves. International Journal of Pharmaceutical Sciences and Drug Research 6(3): 224-228.

Kazemitabar, S.K., Azoush, S. and Alikelayeh, AS. 2014. Comparison of RAPD and ISSR molecular markers to determine of genetic diversity in weed dodder (*Cuscuta epithymum* L.). Journal of Biodiversity and Environmental Sciences (JBES) 4(4): 19-26. [The results suggest wide genetic diversity in *C. epithymum* in Iran.]

Kenmogne, S.B., Ngassoum, M., Tchatchueng, J.B., Vardamides, J.C. and Dongmo, A. 2014. Microwave assisted extraction of analgesic compounds of the root of *Ximenia americana* (Olacaceae). Research Journal of Chemical Sciences 4(7): 7-10.

Khan, M.I. and Giridhar, P. 2014. The berries of *Santalum album* L. as a new source of cyanidin-3-glucoside and chemical profiling during different stages of berry development. Proceedings of the National Academy of Sciences India. Section B, Biological Sciences 84(3): 689-694. [Concluding that only the mature, black berries of *S. album* should be harvested for maximum yield of anthocyanin pigment.]

Khan, M.S.H., Hasan, M.N. and Akhtaruzzaman, M. 2014. Total phenolic compound, moisture and total carotenoid content of selected ten vegetables consumed by tribal people of Bangladesh. Journal of Natural Product and Plant Resources 4(5): 32-38. [Including results for *Cuscuta reflexa* 'one of ten highly consumed tribal vegetables' locally.]

Kim, G.J., LeBlanc, M.L., Wafula, E.K., dePamphilis, C.W. and Westwood, J.H. 2014. Genomic-scale exchange of mRNA between a parasitic plant and its hosts. Science (Washington) 345(6198): 808-811. (Recent work has documented lateral gene transfer (LTG) in several taxa and their hosts from diverse clades. This paper is the first to show large numbers-thousands-of genes moving bidirectionally. Cuscuta pentagona (often considered conspecific with C. campestris) is an ideal organism to investigate LGT because it is easy to grow and has a broad host range).

Kim JongJin, Hwang YunHo, Kang KyungYun, Kim Inbo, Kim JongBae, Park JongHwan, Yoo YungChoon, andYee SungTae. 2014. Enhanced dendritic cell maturation by the B-chain of Korean mistletoe lectin (KML-B), a novel TLR4 agonist. International Immunopharmacology 21(2): 309-319. [Confirming that the B-chain lectin from *Viscum album* var. *coloratum* exhibits potent immunomodulatory properties, suggesting that it be considered a potential dendritic cell-based cancer therapy and immunoadjuvant.]

*Kim, K-W., Yang, S-H. and Kim, J-B. 2014. Protein Fractions from Korean Mistletoe (*Viscum album* coloratum) Extract Induce Insulin Secretion from Pancreatic Beta Cells. Evidence-Based Complementary and Alternative Medicine 10.1155/2014/703624. (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4053293/) [The protein fractions enhanced the insulin secretion from pancreatic β -cells without any cytotoxicity. Transcription factors that regulate the expression of insulin genes were upregulated and significantly lowered the blood glucose level and the volume of drinking water in alloxan-induced hyperglycaemic mice.]

Kinner, K. 2014. (Palliative therapy in oncology - various aspects of oncological small animal medicine.) (in German) Tierärztliche Umschau 69(6): 240-243. [Including reference to the use of *Viscum album* preparations.]

Ko SukMin, Kwon YongKook, Kim JongHyun, Song InJa, Lee HyoYeon, Choi DongWoog, Liu JangR and Kim SukWeon. 2014. Transcriptome analysis of mistletoe (Viscum album) haustorium development. Horticulture, Environment and Biotechnology 55(4): 352-361. (A study that has potential for elucidating the genetic and developmental facets of haustorial penetration. By using express sequence tags, the authors were able to analyze a transcriptome showing genes affecting cell wall elasticity and other factors important for haustorial penetration and attachment.)

Koltai, H. 2014. Implications of non-specific strigolactone signaling in the rhizosphere. Plant Science 225: 9-14. [The essentialness of strigolactones as communication

signals in symbiotic and parasitic plant interactions is discussed in view of the existence of other plant-derived substances that are able to promote these plant interactions. Also, possible strigolactone use in agriculture practices is suggested.]

Kuijt, J. 2014. Five new species, one new name, and transfers in Neotropical mistletoes (Loranthaceae), miscellaneous notes, 61-68. Novon 23(2): 176-186. [Proposing new combinations for *Maracanthus costaricensis* (=*Oryctina costaricensis*) and *Passovia pedunculata* (=*Loranthus pedunculatus*), and describing 5 new species of Loranthaceae, *Psittacanthus longiflorus*, *Struthanthus cajamarcanus*, *S. ophiostylus* and *Tristerix divaricatus* all from Peru and *S. truncatus* from Colombia.The name *Passovia pedunculata* is neotypified.]

Kuijt, J. 2014. A monograph of the genus *Aetanthus* (Loranthaceae). Plant Diversity and Evolution 131:1-51. [This treatment recognizes 15 high elevation species, distributed from central Peru to Andean Venezuela and northern Colombia. Six new species were named (*Aetanthus megaphyllus*, *A. pascoensis*, *A. prolongatus*, *A. sessilifolius*, *A. tachirensis*, and *A. validus*).

Kumar, K.N.S., Shakila, R. and Amerjothy, S. 2014. Physicochemical evaluation, nutraceutical composition and HPLC-UV fingerprint of *Helicanthus elastica* (Desr.) Danser (Indian Mango Mistletoe). International Journal of Green Pharmacy 8(3): 175-179. [The study revealed appreciable quantity of vitamins and trace elements in the mango mistletoe, properly named *Helicanthes elasticus*.]

Kumar, T.G.A. and Mathew, L. 2014. Preliminary phytochemical and pharmacognostic studies of *Helixanthera wallichiana* - an endemic plant of Western Ghats. International Journal of Ayurvedic and Herbal Medicine 4(3): 1494-1498.

Lárez, A. and Calzadilla, J. 2012. (*Pilostyles galactiae* Ule (Apodanthaceae), first record for Venezuela.) (in Spanish) Ernstia 22(2): 131-140. [Found growing on *Galactia jussiaeana* in The Piar Municipie's savanna of the Monagas state, Venezuela.]

*Le, Q.-V., Tennakoon, K.U., Metali, F., Lim LB., Bolin, JF. 2014. Host specific variation in photosynthesis of an obligate xylem-tapping mistletoe *Dendrophthoe curvata* (Blume) Miquel in Bornean heath forest. Nordic Journal of Botany. Online version: DOI: 10.1111/njb.00628. [see article above.]

Lepší, M.; and Lepší, P. 2013. (Records of interesting and new plants in the South Bohemian flora XIX.) (in Czech) Sborník Jihočeského Muzea v Českých Budějovicích, Přírodní Vědy 53: 70-85. [Recording new locations for *Cuscuta campestris* in the Czech Republic.]

Letso, M. and Thela, N. 2013. The substitution of a parasitic plant (*Viscum verrucosum*) for lucerne hay in sheep diets. International Journal of Livestock Research 3(4): 33-41. [A diet of 60:20:20 grass hay:lucerne hay:*V. verrucusum* gave improved weight gain compared with ratios of grass:lucerne 60:40 or 60:40 grass:*V. verrucosum*.]

Li MaoXing, He XiRui, Tao Rui and Cao XinYuan. 2014. Phytochemistry and pharmacology of the genus *Pedicularis* used in traditional Chinese medicine. American Journal of Chinese Medicine 42(5):1071-1098. [Reviewing the use of *Pedicularis* spp. in Chinese medicine, their chemical components and their uses including antitumor, hepatoprotective, anti-oxidative, antihaemolysis, antibacterial activity, fatigue relief of skeletal muscle, nootropic effect and other activities.]

Li XiuHui, Gou ChunYan, Yang HuaSheng, Qiu JinPeng, Gu Tao and Wen Tao. 2014. Echinacoside ameliorates D-galactosamine plus lipopolysaccharide-induced acute liver injury in mice via inhibition of apoptosis and inflammation. Scandinavian Journal of Gastroenterology 49(8): 993-1000. [Echinacoside, the active component of extracts from *Cistanche salsa* can provide a pronounced protection against acute liver injury in mice.]

Lira-Noriega, A. and Peterson, A.T. 2014. Range-wide ecological niche comparisons of parasite, hosts and dispersers in a vector-borne plant parasite system. Journal of Biogeography 41(9): 1664-1673. [Studying whether the distribution of *Phoradendron californicum* is mediated by host distributions (host niche hypothesis, HNH), the mistletoe's autecology (parasite niche hypothesis, PNH) or that of its vectors (vector niche hypothesis, VNH), and concluding that results match PNH. The parasite has a strictly circumscribed ecological niche, and host species become infected with mistletoe only where they overlap its suitable areas.]

Lu, J.K., Xu, D.P., Kang, L.H. and He, X.H. 2014. Host-species-dependent physiological characteristics of hemiparasite *Santalum album* in association with N_2-fixing and non-N_2-fixing hosts native to southern China. Tree Physiology 34(9): 1006-1017. [Comparing the growth, in pots, of *S. album* on *Bischofia polycarpa* and *Dracontomelon duperreranum* and N_2-fixing hosts *Acacia confusa* and *Dalbergia odorifera*. Perhaps showing that growth of *S. album* was best on *D. odorifera*, but abstract not clear.]

Ma ZhiGuo, Yang ZhenYa, Lu DanYi, Dai Long, Wu BaoJian and Yao Shun. 2014. Determination of bioactive components of *Cistanche deserticola* (Roucongrong) by high-performance liquid chromatography with diode array and mass spectrometry detectors. Analytical Letters 47(17): 2783-2794. [Describing changes in constituents following steaming.]

Mabrouk, Y., Mejri, S., Delavault, P., Simier, P. and Belhadj, O. 2014. Lipopolysaccharide isolated from *Rhizobium leguminosarum* strain P.SOM induces resistance in pea roots against *Orobanche crenata*.

African Journal of Microbiology Research 8(27): 2624-2630. [Noting that *R. leguminosarum* induces resistance to *O. crenata* in peas, and showing that the heat-stable bacterial surface carbohydrates lipopolysaccharides reduced *O. crenata* infection significantly at concentrations as low as 1 and 0.5 mg/ml.]

Maina, S.W. and Gowland-Mwangi, J. 2014. Using agricultural shows to create demand for Desmodium seeds in "push pull" technology adoption in Western Kenya. International Journal of Agricultural Extension 2(1): 43-46. [Emphasising the need to encourage farmers to purchase seed of *Desmodium* spp. for control of *Striga*.]

Marias, D.E., Meinzer, F.C., Woodruff, D.R., Shaw, D.C., Voelker, S.L., Brooks, J.R., Lachenbruch, B., Falk, K. and McKay, J. 2014. Impacts of dwarf mistletoe on the physiology of host *Tsuga heterophylla* trees as recorded in tree-ring C and O stable isotopes. Tree Physiology 34(6):595-607. [Reporting a long-term study of western hemlock uninfected and infected with *Arceuthobium tsugense*. Uninfected trees grew more rapidly than infected but when infected, rapidly declined in growth as measured in growth rings and leaf level photosynthesis.]

Marinho, P.V.T., da Nóbrega Neto, P.I., Pedrosa, D., de Leite, A.R.A., Ramos, S.M.L., Dantas, A.F.M. and Minto, B.W. 2014. (Evaluation of the hydroalcoholic extract of *Ximenia americana* in the cicatricial process of experimental cutaneous wounds in goats.) (in Portuguese) Veterinária e Zootecnia 20(4): 604-614. [Concluding that *X. americana* as an ointment using vegetable fat as vehicle, does not stimulate the cicatricial process.]

Marinkovic´, R., Jockovic´, M., Jeromela, A.M., Marisavljevic´, D. and Sakač, Z. 2014. Resistance evaluation of different inbreds and hybrids of sunflower to broomrape (*Orobanche cumana* Wallr.). Ratarstvo i Povrtarstvo 50(3): 53-59. [Providing detailed results from the testing of a wide range of new lines at sites in Serbia, Romania and Turkey. A number were found resistant to the most virulent race E biotypes of *O. cumana* and some of these also showed superior agronomic characteristics.]

Matysiak, K., Kaczmarek, S. and Kierzek, R. 2104. Allelopathic effect of popular medicinal plants on *Fagopyrum esculentum* (Moench), *Papaver somniferum* (L.) and *Brassica napus* var. *oleifera* (L.). Journal of Medicinal Plants Research 8(33): 1051-1059. [A dried product from a *Euphrasia* sp. inhibited germination of buckwheat.]

Mazzio, E., Badisa, R., Mack, N., Deiab, S. and Soliman, K.F.A. 2014. High throughput screening of natural products for anti-mitotic effects in MDA-MB-231 human breast carcinoma cells. Phytotherapy Research 28(6): 856-867. [*Phoradendron flavescens* among the most active materials tested.]

Mellado, A. and Zamora, R. 2014. Linking safe sites for recruitment with host-canopy heterogeneity: the case of a parasitic plant, *Viscum album* subsp. *austriacum* (Viscaceae). American Journal of Botany 101(6): 957-964. [The narrow range of suitable host species and the scarcity and spatially restricted recruitment hotspots for *V. album* spp. *austriacum* leads to the clumping of populations at the finer spatial scale.]

Mellado, A. and Zamora, R. 2014. Generalist birds govern the seed dispersal of a parasitic plant with strong recruitment constraints. Oecologia 176(1): 139-147. [Although specialist mistletoe feeders are assumed to be most important in ensuring dispersal, a study on *Viscum album* ssp. *austriacum* recorded 11 bird species involved, including some very effective non-specialised feeders.]

Mesfin Abate, Firew Mekbib, Temam Hussien, Wondimu Bayu and Fasil Reda. 2014. Assessment of genetic diversity in sorghum (*Sorghum bicolor* (L.) Moench) for reactions to *Striga hermonthica* (Del.) Benth. Australian Journal of Crop Science 8(8): 1248-1256. [Identifying a number of landraces that combined high grain yield with low or moderate *Striga* emergence, of potential for further breeding and selection.]

Miguel, M., Bouchmaa, N., Aazza, S., Gaamoussi, F., and Lyoussi, B. 2014. Antioxidant, anti-inflammatory and anti-acetylcholinesterase activities of eleven extracts of Moroccan plants. Fresenius Environmental Bulletin 23(6): 1375-1388. [*Viscum album* higher in antioxidants than other species studied.]

Miladinovic´, D., Imerovski, I., Dimitrijevic´, A., Jocic´, S., Cvejic´, S., Dedic´ and B., Miklič, V. 2012. Conventional and molecular breeding for broomrape resistance in sunflower. In Terzic´, S. (ed.) International Conference on BioScience: Biotechnology and Biodiversity – "Step in the Future". The Fourth Joint UNS - PSU Conference, Novi Sad, Serbia, 18-20 June 2012: 180-183. [Marker assisted selection has proved to be a valuable tool in sunflower breeding programs for *Orobanche cumana* resistance gene identification, accelerating and facilitating broomrape resistance breeding.]

Misra, B.B and Satyahari Dey. 2014. Immunolocalization of α-santalol in sandalwood. Journal of Essential Oil Research 26(4): 238-246. [Using polyclonal rabbit antibodies to immunolocalize α-santalol in sandalwood indicating its localization in the vascular bundles of somatic embryos and leaves, whereas distribution was evident in secondary xylem, cortical parenchyma and epidermis of the mature stem.]

Mohamed, A., Ali, R., Elhassan, O., Suliman, O., Mygoya, C., Masiga, C.W., Elfusien, A., and Hash, C.T. 2014. First products of DNA marker-assisted selection in sorghum released for cultivation by farmers in sub-saharan Africa. Journal of Plant Science and Molecular

Breeding 3(3): [In an ICRISAT study, 5 QTLs with linked markers associated with Striga resistance were mapped in sorghum variety N13 and used in conjunction with others to select within progeny from crosses with 3 preferred farmer varieties in Sudan, leading to the development of 4 lines with good Striga-resistance and high yield.]

Monteiro, J.M., de Souza, J.S.N., Lins Neto, E.M.F., Scopel, K., Trindade, E.F., Leitão, S.G. and de Oliveira, D.R. 2014. Does total tannin content explain the use value of spontaneous medicinal plants from the Brazilian semi-arid region? Revista Brasileira de Farmacognosia 24(2): 116-123. [Apparently a *Ximenia* sp. included in the study of tannin levels in bark, but no detail in abstract.]

Moran-Palacio, E.F., Zamora-Álvarez, L.A., Stephens-Camacho, N.A., Yáñez-Farías, G.A., Virgen-Ortiz, A., Martínez-Cruz, O. and Rosas-Rodríguez, J.A.. 2014. Antioxidant capacity, radical scavenging kinetics and phenolic profile of methanol extracts of wild plants of Southern Sonora, Mexico. Tropical Journal of Pharmaceutical Research 13(9): 1487-1493. [*Krameria erecta* possesses five times the antioxidant activity of ascorbic acid and also demonstrates high phenolic content, which supports the beneficial properties attributed to these plants in traditional medicine.]

Morikawa, T. and 10 others. 2014. Acylated phenylethanoid glycosides, echinacoside and acteoside from *Cistanche tubulosa*, improve glucose tolerance in mice. Journal of Natural Medicines 68(3): 561-566.

Moupela, C., Vermeulen, C,; Doucet, J.L., Daïnou, K. and Lebailly, P. 2014. Importance of *Coula edulis* Baill. for the people of South-East Gabon: harvest levels and economic potential. Tropicultura 32(1): 37-45. [Suggesting that the economical potential of the edible fruits of *C. edulis* (Olacaceae) could be improved if a sustainable production strategy through domestication processes and agroforestry practices was developed.]

Musselman, L.J. 2014. The well-travelled tallow wood, *Ximenia americana.* Chinquapin. The Newsletter of the Southern Appalachian Botanical Society 22(3): 1. [A general description of *X. americana*, occurring locally in USA, parasitic on a wide range of woody hosts, but also widespread in Africa, where the plum-like fruits are consumed fresh and also used as a source of oil. There was an article on it by Lytton in Haustorium 61.]

Myartseva, S.N., Ruíz-Cancino, E. and Coronado-Blanco, J.M. 2014. (Two new species of the genus *Coccophagus* Westwood, 1833 (Hymenoptera: Aphelinidae) from the state of Tamaulipas, Mexico.) (in Spanish) Acta Zoologica Mexicana 30(1): 135-143. [*C. indefinitus* a parasitoid of *Parasaissetia nigra* (Hemiptera) reecorded on mistletoe *Phoradendron quadrangulare*.]

Myartseva, S.N., Ruíz-Cancino, E. and Coronado-Blanco, J.M. 2014. *Parasaissetia nigra* (Hemiptera: Coccidae) and its parasitoids from the genus *Coccophagus* (Hymenoptera: Aphelinidae), with description of a new species from Tamaulipas, México. Florida Entomologist 97, 3, 1015-1020. [Describing *C. minor* reared from *P. nigra* growing on *Phoradendron quadrangulare* growing on *Acacia farnesiana*.]

Nacsa-Farkas, E., Kerekes, E., Kerekes, E.B., Krisch, J., Roxana, P., Vlad, D.C., Ivan, P. and Vágvölgyi, C. 2014. Antifungal effect of selected European herbs against *Candida albicans* and emerging pathogenic non-albicans *Candida* species. Acta Biologica Szegediensis 58(1):61-64. [Moderate activity shown by extracts of *Viscum album*.]

Nagaveni, H. C, Sundararaj, R. and Vijayalakshmi, G. 2014. First report of canker disease on Indian sandalwood (*Santalum album* Linn.) in India. Journal on New Biological Reports 3(2): 120-124. [Recording canker caused by *Fusarium oxysporum* on *S. album.*]

Nahata, A. and Dixit, V.K. 2014. Evaluation of 5α-reductase inhibitory activity of certain herbs useful as antiandrogens. Andrologia 46(6): 592-601. [*Cuscuta reflexa* included in the study but no result in abstract.]

Nambafu, G.N., Onwonga, R.N., Karuku, G.N., Ariga, E.S., Vanlauwe, B. and de Nowina, K.R. 2014. Knowledge, attitude and practices used in the control of *Striga* in maize by smallholder farmers of Western Kenya. Journal of Agricultural Science and Technology, B 4(3): 237-248. [Concluding that concerted effort involving researchers, extension agents and private sector are required for wide scale dissemination and adoption of the existing modern control technologies.]

Naumann, J., Salomo, K., Der, J.P., Wafula, E.K., Bolin, J.F., Maass, E., Frenzke, L., Samain, M.-S., Neinhuis, C., dePamphilis, C.W. and Wanke, S. 2013. Single-copy nuclear genes place haustorial Hydnoraceae within Piperales and reveal a Cretaceous origin of multiple parasitic angiosperm lineages. PLoS ONE 8:e79204. [Molecular dating showed that Hydnoraceae evolved ca. 91 mya. After examining other parasite groups, the 'temporal specialization hypothesis' was proposed where older lineages tend to be more specialized.]

Nazaruddin, D.A., Fadilah, N.S.M., Zulkarnain, Z., Omar, S.A.S. and Ibrahim, M.K.M. 2014. Geological studies to support the tourism site: a case study in the *Rafflesia* trail, near Kampung Jedip, Lojing Highlands, Kelantan, Malaysia. International Journal of Geosciences 5(8): 835-851. [The area is famous for its *Rafflesia* and has become one of the tourism attractions in Kelantan. Studies conclude that this area should be supported as a sustainable tourism site.]

N'cho, S.A., Mourits, M., Rodenburg, J., Demont, M. and Lansink, A.O. 2014. Determinants of parasitic weed

infestation in rainfed lowland rice in Benin. Agricultural Systems 130: 105-115 [A survey of 231 fields showed that 72% were infested by *Rhamphicarpa fistulosa* with average density of 109 plants m^{-2}. Occurrence was most likely on infertile soils in valley bottoms. Helpful control practices included late sowing, timely application of post-emergence herbicide, three hoe or hand weeding operations, medium-rate fertilizer application and prolonged fallow.]

Ndagurwa, H.G.T., Dube, J.S., Mlambo, D. and Mawanza, M. 2014. The influence of mistletoes on the litter-layer arthropod abundance and diversity in a semi-arid savanna, Southwest Zimbabwe. Plant and Soil 383(1/2: 291-299. [Showing that *Erianthemum ngamicum* and *Plicosepalus kalachariensis* infesting *Acaia karoo* increase the abundance and diversity of litter-dwelling and -foraging arthropods due to increase in the quality and quantity of litterfall beneath infected trees. Effect from *Viscum verrucosum* less marked.]

Neetu Bais and Arun Kakkar. 2014. Bioassay-guided phytochemical analysis of active fraction of *Cuscuta reflexa* grown on *Cassia fistula* by LC-MS. International Journal of Pharma and Bio Sciences 5(3): P-585-P-592. [Concluding that the antibacterial activity of fraction-8 was due to the presence of derivatives of quinoxalin, quercetin, and chromenones.]

Nekouam, N. 2014. Evaluation of sorghum bicolor in farmer field for resistance to *Striga hermonthica*. Journal of Agricultural Science and Technology, B 4(6): 449-453. [Four lines tested for response to *S. hermonthica* but none satisfactory across all 5 sites in Chad.]

Nikolov, L.A., Tomlinson, P.B., Manickam, S., Endress, P.K., Kramer, E.M. and Davis, C.C. 2014. Holoparasitic Rafflesiaceae possess the most reduced endophytes and yet give rise to the world's largest flowers. Annals of Botany 114(2): 233-242. [This paper confirms the mycelium-like endophyte, the body of the parasite within its host (always a member of the grape family, Vitaceae) and shows for the first time the unique development of the protocorm. Despite the microscopic nature of the endophyte, discussed in detail, the largest known flower is produced from these strands of cells.]

Nittayajaiprom, W., Sangthong, P., Chancharunee, S., Wipatanawin, A., Wanasawas, P. and Chulasiri, M. 2014. Mutagenicity, antimutagenicity and tyrosinase inhibition activity of hydroglycol extracts from *Terminalia chebula* Retzius, *Terminalia bellerica* Roxb and *Rafflesia kerrii* Meijer. International Journal of Phytomedicine 6(1): 93-102. [Results suggest that extracts of these three plants may be used as potential candidates for skin-care cosmeceutical ingredients.]

Nobis, M. and 14 others. 2014. Contribution to the flora of Asian and European countries: new national and regional vascular plant records, 2. Acta Botanica Gallica 161(2): 209-221. [Recording a new report of *Orobanche rumseiana* in Italy and describing a new variety, *O. rumseiana* var. *sarda*.]

Novidzro, K.M., Agbodan, K.A., Simalou, O. and Koumaglo, K.H. 2014. Bioethanol production from *Curcubita pepo* and *Opilia amentacea* fruits using four strains of *Saccharomyces cerevisiae*. African Journal of Biotechnology 13(36): 3715-3723. [Studying *O. amentaceae* as a source of ethanol.]

Nowak, A., Nowak, S., Nobis, M. and Nobis, A. 2014. A report on the conservation status of segetal weeds in Tajikistan. Weed Research (Oxford) 54(6): 635-648. [Listing *Cuscuta approximata, C. epilinum, C. europaea, C. monogyna* ('vulnerable'), *C. pedicellata, C. planiflora* (the latter two 'critically endangered') and *Phelipanche aegyptiaca*.]

Nzioki, H.S., Kinyua, Z.M., Karanja, J., Nguluu, S., Wambua, J. and Gatheru, M. 2014. Pot and field evaluation of *Fusarium oxysporum* isolates for biological control of *Alectra vogelii* weed in semi-arid eastern Kenya. International Journal of AgriScience 4(7): 383-391. [Reporting promising results with a range of isolates of *F. oxysporum*, one of which applied to planting holes in the field, reduced *A. vogelii* by 60% and increased cowpea yield by 70%.]

Olorunfemi, O.D., Ogunlade, I., Fakayode, S.B. and Adekunle, O.A. 2014. Ensuring improved livelihood opportunities for resource-poor maize farmers through the dissemination of Striga control methods in Kwara State, Nigeria. Albanian Journal of Agricultural Sciences 13(2): 80-88. [Emphasising the need to support the 4 main sources for diffusing *Striga* control methods in the area, namely neighbours and friends, government agencies, agricultural extension agents and farmers groups.]

Orhan, N., Hoşbaş, S., Orhan, D.D., Aslan, M. and Ergun, F. 2014. Enzyme inhibitory and radical scavenging effects of some antidiabetic plants of Turkey. Iranian Journal of Basic Medical Sciences 17(6): 426-432. [Noting that *Viscum album* ssp. *album*, and ssp. *austriacum* are used traditionally for treatment of diabetes in Anatolia, but no results with these are mentioned in the abstract.]

Palatty, P.L. and 12 others. 2014. Topical application of a sandal wood oil and turmeric based cream prevents radiodermatitis in head and neck cancer patients undergoing external beam radiotherapy: a pilot study. British Journal of Radiology 87: 1038. [Confirming effectiveness of *Santalum album* and turmeric in preventing radiodermatitis and proposing need for larger double-blind validation trials.]

Parvender Sheoran, Punia, S.S., Samunder Singh and Dhiraj Singh. 2014. *Orobanche* weed management in mustard:

opportunities, possibilities and limitations. Journal of Oilseed Brassica 5(2): 96-101. [*O. aegyptiaca* is a major problem in mustard (*Brassica juncea*) in Haryana, Punjab, northern Rajasthan, western UP and NE Madhya Pradesh. Field trials and larger-scale multi-location testing over 4 seasons confirmed that a split application of glyphosate 25 g/ha at 30 days after sowing followed by 50 g/ha at 55 days provided 70-80% reduction in *Orobanche* and 15-20% yield increase with negligible signs of damage.]

Pattanayak, S.P., Priyashree Sunita and Mazumder, P.M. 2014. Restorative effect of *Dendrophthoe falcata* (L.f.) ettingsh on lipids, lipoproteins, and lipid-metabolizing enzymes in DMBA-induced mammary gland carcinogenesis in Wistar female rats. Comparative Clinical Pathology 23(4): 1013-1022. [Recording a cytoprotective role for *D. falcata* extract against mammary carcinogenesis in rats.]

Pielach, A., Leroux, O., Domozych, D.S., Knox, J.P., Popper, Z.A., Popper, Z.A., Ralet, M.C. and Domozych, D.S. 2014. Arabinogalactan protein-rich cell walls, paramural deposits and ergastic globules define the hyaline bodies of rhinanthoid Orobanchaceae haustoria. Annals of Botany 114(6): 1359-1373. [The distinctive anatomy and cell wall architecture indicate hyaline body specialization in *Rhinanthus minor*, *Odontites vernus* and *Melampyrum pratense*. Altered proportions of AGPs and pectins may affect the mechanical properties of hyaline body cell walls and AGPs might therefore be implicated in nutrient transfer and metabolism in haustoria.]

Piwowarczyk, R. 2014. *Orobanche caryophyllacea* Sm. (Orobanchaceae) in Poland: current distribution, taxonomy, plant communities and hosts. Acta Agrobotanica 67(3): 97-118. [Mainly in S and SE Poland. The taxonomy, biology and ecology of the species are discussed.]

Piwowarczyk, R., Halamski, A.T. and Durska, E. 2014. Seed and pollen morphology in the *Orobanche alsatica* complex (Orobanchaceae) from central Europe and its taxonomic significance. Australian Systematic Botany 27(2): 145-157. [Differences in hosts and ecological preferences confirm the separation of the three examined taxa, *O. alsatica*, *O. bartlingii* and *O. mayeri*, but seed and pollen morphology are too variable to be reliable taxanomic characters.]

Platt, S. 2014. Novel and adjunctive treatments. In: de Risio, L. and Platt, S. (eds) Canine and feline epilepsy: diagnosis and management. CABI, Wallingford, UK,: pp. 537-566. [A general review of alternative therapies, including the use of *Viscum album* in both pets and humans.]

Poonam Agrawal, Kirti Laddha and Ashok Tiwari. 2014. Isolation and HPLC method development of azafrin from *Alectra parasitica* var. *chitrakutensis*. Natural Product Research 28(13): 940-944. [Presumably the rhizomes of *A. parasitica* are a source of saffron (azafran in Spanish).]

Pradeep, D.P., Krishnan, V.G.M., Aswathy, J.M., Greeshma, M., Greeshma, G.M., Remya Krishnan, Lubaina, A.S. and Murugan, K. 2014. Interaction between hemiparasitic-*Dendrophthoe falcata* (L.) Etting. on *Mangifera indica* Linn. - some observations. World Journal of Pharmacy and Pharmaceutical Sciences (WJPPS) 3(7): 585-607. [Reporting on a wide-ranging biochemical analysis of infected mango tissues.]

Priyanka Bhatt, Nitin Thodsare and Srivastava, R.P. 2014. Phagostimulant activity of some botanicals to *Bombyx mori* Linn. The Bioscan 9(2): 625-628. [*Santalum album* among extracts showing activity on silkworm larvae.]

Priyanka Bhatt, Nitin Thodsare and Srivastava, R.P. 2014. Toxicity of some bioactive medicinal plant extracts to Asian army worm, *Spodoptera litura*. Journal of Applied and Natural Science 6(1): 139-143. [*Dendropthoe falcata* most active of several species. *Cuscuta reflexa* somewhat less so.]

Rai, I.D., Adhikari, B.S. and Rawat, G.S. 2014. A rare and endangered root parasite: *Balanophora involucrata* Hook. F. & Thompson. Indian Forester 140(4): 435-436. [*R. involucrata* recorded in Kedarnath Wildlife Sanctuary (Uttarakhand, India), reported earlier only from Ghangharia. Describing plant morphology, distribution, medicinal uses and conservation status.]

Rathore, S.S., Shekhawat, P., Premi, O.P., Kandpal, B.K. and Chauhan, J.S. 2014. Biology and management of the fast-emerging threat of broomrape in rapeseed-mustard. Weed Biology and Management 14(3): 145-158. [A general review of *Phelipanche ramosa* in *Brassica* crops from an Indian perspective.]

Reger, B., Mellert, K.H. and Ewald, J. 2014. (Indicator species of nutrient-poor sites in mountain forests of the Bavarian Alps.) (in German) Tuexenia 34: 39-51. [*Melampyrum sylvaticum* noted as closely connected to nutrient-poor calcareous sites on limestone and dolomite.]

Restrepo Osorio, R.A., Nieto Cárdenas, O.A., Aristizabal Franco, J. and Landazuri, P. 2014. Angiotensin-converting enzyme inhibition *Byphthirusa pyrifolia* (Kunth) eicher. World Journal of Pharmacy and Pharmaceutical Sciences (WJPPS) 3(6): 352-363. [Confirming the activity of *Pthyrusa pyrifolia* in reducing angiotensin, but noting toxicity to brine shrimp.]

Ridenour, W.M., Callaway, R.M. and Cavieres, L.A. 2014 Parasitism by *Cuscuta chilensis* and gender affect how the nurse cushion *Laretia acaulis* increases diversity in Andean alpine communities. Journal of Vegetation Science 25(6): 1474-1483. [Infection of *L. acaulis* (Apiaceae) by *C. chilensis* was greater on female host plants than on male, and increased a number of the beneficial insects associated with the host plant.]

Rodenburg, J., Cissoko, M., Kayeke, J., Dieng, I., Khan, Z.R., Midega, C.A.O., Onyuka, E.A. and Scholes, J.D. 2015. Do NERICA rice cultivars express resistance to *Striga hermonthica* (Del.) Benth. and *Striga asiatica* (L.) Kuntze under field conditions? Field Crops Research, 170: 83–94. [Resistance to *Striga asiatica* and *S. hermonthica* in NERICA rice cultivars previously identified under lab (*in vitro*) conditions was confirmed in the *Striga*-infested fields.]

Rowntree, J.K., Barham, D.F., Stewart, A.J.A. and Hartley, S.E. 2014. The effect of multiple host species on a keystone parasitic plant and its aphid herbivores. Functional Ecology 28(4): 829-836. [Noting that the activity of *Aphis gossypii* on *Rhinanthus minor* was reduced when it parasitised *Lotus corniculatus*, Other results suggested that host mixtures generally benefitted aphids and that the specificity of host attachment alters the impact of this keystone parasitic plant on its own herbivores and, potentially, on the wider plant and herbivore community.]

Rubiales, D. 2014. Legume breeding for broomrape resistance. Czech Journal of Genetics and Plant Breeding 50(2): 144-150. [A general review.]

Rubiales, D., Flores, F., Emeran, A.A., Kharrat, M., Amri, M., Rojas-Molina, M. and Sillero, J.C. 2014.Identification and multi-environment validation of resistance against broomrapes (*Orobanche crenata* and *Orobanche foetida*) in faba bean (*Vicia faba*). Field Crops Research 166: 58-65. [Screening of 483 *V. faba* lines, and field testing in Egypt, Spain and Tunisia found no complete resistance and a degree of instability of the phenotypic expression across environments, cultivar Baraca and accessions V-1268, V-1302, V-1301, V-268, V-231, V-319 and V-1272 showed a useful degree of resistance, stable across environments, to both *O. crenata* and *O. foetida*.]

Rubiales, D., Fondevilla, S., Chen, W., Gentzbittel, L., Higgins, T.J.V., Castillejo, M.A., Singh, K.B., and Rispail, N. 2014. Achievements and challenges in legume breeding for pest and disease resistance. Critical Reviews in Plant Sciences, 34: 195–236. [A comprehensive review on pest and disease resistance in legumes.]

Ruszkiewicz-Michalska, M. and Połec´, E. 2014. Additions to *Ramularia* species (hyphomycetes) in Poland. Mycotaxon 127: 63-72. [As *R. melampyri* (a leaf-spot fungus) new for Poland infects *Melampyrum* spp., currently classified in *Orobanchaceae*, the implications of the new systematics of *Scrophulariaceae* s.l. for the taxonomy of *Ramularia* and related *Mycosphaerella* species are discussed briefly.]

Sagar, P.K. 2014. Adulteration and substitution in endangered, ASU herbal medicinal plants of India, their legal status, scientific screening of active phytochemical constituents. International Journal of Pharmaceutical Sciences and Research (IJPSR) 5(9): 4023-4039. [A review covering *Santalum album*.]

Sani, B. and Jodaian, V. 2014. Uniform farm operations (UFO) on hemp broom rape seed germination by biological control management in Iran. Scientific Papers Series - Management, Economic Engineering in Agriculture and Rural Development 14(2): 257-260. [Apparently recording substantial reduction in germination of *Orobanche ramosa* by the fungus *Chondrostereum purpureum*, but no useful detail of methodology, or selectivity.]

Sani, H., Aliero, B.L., Aliero, A.A. and Ahmed, H.G. 2014. Floristic composition and life forms study of woody plants in Magama local government area, Niger state, Nigeria. Annual Research & Review in Biology 4(3): 527-537. [*Ximenia americana* is a minor component of forest in this district.]

Sawadogo, A., Gnankine, O., Badolo, A., Ouedraogo, A., Ouedraogo, S., Dabiré, R. and Sanon, A. 2013. First report of the fruits flies, *Ceratitis quinaria* and *Ceratitis silvestri*, on yellow plum *Ximenia americana* in Burkina Faso, West Africa. Open Entomology Journal 7: 9-15.

Schad, F., Atxner, J., Buchwald, D., Happe, A., Popp, S., Kröz, M. and Matthes, H. 2014. Intratumoral mistletoe (*Viscum album* L) therapy in patients with unresectable pancreas carcinoma: a retrospective analysis. Integrative Cancer Therapies 13(4): 332-340. [39 patients with advanced, inoperable pancreatic cancer, who each received 4 or 5 intratumoral applications of *V. album* extract suffered only mild non-serious side effects. Lack of controls meant no conclusions on effects on cancer.]

Shailajan, S., Joshi, H. and Tiwari, B. 2014. A comparative estimation of quercetin content from *Cuscuta reflexa* Roxb. using validated HPTLC and HPLC techniques. Journal of Applied Pharmaceutical Science 4(7): 123-128.

Shamrov, I.I. 2014. (The gynoecium formation in *Buddleja davidii* (*Buddlejaceae*).) (in Russian) Botanicheskiĭ Zhurnal 99(7): 729-748. [Including comparisons with Scrophulariaceae and referring to the complex bundle formed in the center of the ovary due to fusion of four ventral bundles as in *Striga gesnerioidess* and possibly *S. elegans*.]

Sharma, K.R. and Lekha, C. 2014. *Santalum album* L. in Himachal Pradesh - a report. Indian Forester 140(6): 629-632. [Suggesting that quality of products from *S. album* in Himachal Pradesh makes it potentially suitable for cultivation there.]

Sharma, M., Levenson, C., Bell, R.H., Anderson, S.A., Hudson, J.B., Collins, C.C. and Cox, M.E. 2014. Suppression of lipopolysaccharide-stimulated cytokine/chemokine production in skin cells by sandalwood oils and purified α-santalol and β-santalol.

Phytotherapy Research 28(6): 925-932. [Results help to explain the anti-inflammatory properties of *S. album*.]

Shui XiaoRong, Tang ShaoHu and Lei Wei 2014. Bioinformatic analysis of transcription factor MYB 1 and its targeted-regulatory microRNAs. Research on Crops 15(3): 687-696. [In this study, MYB1 from four plant species including *Morella rubra, Orobanche ramosa, Leucaena leucocephala* and *Epimedium sagittatum*, was investigated using bioinformatic tools and methods. MYB1 transcription factors have a significant role in regulating plant secondary metabolisms and microRNAs negatively regulate gene expression by inhibiting translation of the target mRNA. MYB1 genes ORF and protein structure were elucidated from these plant species and 3-D models were constructed. Also, possible regulatory miRNAs were predicted.]

Singh, R.K., Singh, R.P. and Singh, M.K. 2013. Weed management in rapeseed-mustard - a review. Agricultural Reviews 34(1): 36-49. [A comprehensive review, incidentally noting that *Orobanche aegytptiaca* is becoming a serious menace in rainfed areas of Rajasthan, Madhya Pradesh and Haryana, but no local control methods mentioned.]

Sipes, S., Huff Hartz, K., Amin, H., Anterola, A. and Nickrent, D. 2014. Floral scent and pollinators of the holoparasite *Pilostyles thurberi* (Apodanthaceae). Journal of Pollination Ecology 12: 31-39. [The pollinators of *Pilostyles thurberi* were identified as the bee *Augochloropsis metallica* (Halictidae) and eumenine potter wasps (Vespidae). GC/MS analysis of the floral scent was shown to contain an unusually simple bouquet of raspberry ketone and several eugenols.]

Smith, D.R. and Asmail, S.R. 2014. Next-generation sequencing data suggest that certain nonphotosynthetic green plants have lost their plastid genomes. New Phytologist 204(1): 7-11. [Findings on the preservation of plastid DNA and their loss is discussed based on next-generation organelle-genome sequencing in different plants including a *Rafflesia* sp. that have lost photosynthetic capabilities]

Smith, L., Hofstetter, R. and Mathiasen, R. 2013. Insect communities associated with Douglas-fir dwarf mistletoe witches' brooms in northern Arizona. Southwestern Naturalist 58(4): 395-402. [Somewhat more Chrysomelidae, Phaleothripidae, Pteromalidae, Miridae, Berytidae, and Braconidae were found on branches infested by *Arceuthobium douglasii* than on uninfested branches.]

Sokho Kim, Dongho Lee, Jae-Kyung Kim, Jae-Hun Kim, Jong-Heum Park, Ju-Woon Lee and Jungkee Kwon. 2014. Viscothionin isolated from Korean Mmstletoe improves nonalcoholic fatty liver disease via the activation of adenosine monophosphate-activated protein kinase. Journal of Agricultural and Food Chemistry 62(49): 11876-11883. [Viscothionin, extracted from *Viscum album coloratum*, given orally to high fat diet-induced obese mice was shown to reduce non-alcoholic fatty liver disease via the adenosine monophosphate-activated protein kinase signaling pathway, suggesting possible usefulness in treatment of obesity.]

Soler, R., Martínez Pastur, G., Lencinas, M.V. and Rosenfeld, M. 2014. Variable retention management influences biomass of *Misodendrum* and *Usnea* in *Nothofagus pumilio* southern Patagonian forests. New Zealand Journal of Botany 52(2): 224-235. ['Aggregated retention' of *M. punctulatum* better than 'variable retention'.]

Suetsugu, K. and Aoyama, T. 2014. *Apis cerana* visiting flowers of the holoparasitic plant *Balanophora fungosa* ssp. *indica*. Entomological News 124(2): 145-147. [No abstract available.]

Sun ShouLi, Guo Li, Ren YaChao, Wang Bing, Li RongHui, Qi YuShan, Yu Hui, Chang NaiDan, Li MingHui and Peng HaiSheng. 2014. Anti-apoptosis effect of polysaccharide isolated from the seeds of *Cuscuta chinensis* Lam on cardiomyocytes in aging rats. Molecular Biology Reports 41(9): 6117-6124.

Takem, L.P., Udia, P.M. and Poh, C.F. 2014. Anti-secretory, gastroprotective and anti-ulcer activities of aqueous extract of *Phragmanthera capitata* S. Balle in rats. International Journal of Pharmaceutical Sciences and Research (IJPSR) 5(8): 3560-3565. [Extracts of *P. capitata*, parasitic on e.g. avocado are used traditionally in Cameroon, and this study showed it to have significant anti-secretory, gastroprotective and anti-ulcer activities.]

Talve, T., Mürk, M., Lindell, T. and Oja, T. 2014. *Rhinanthus* plants found in calcareous fens on Gotland (Sweden): are they related to *Rhinanthus osiliensis* from Saaremaa (Estonia)? Biochemical Systematics and Ecology 54: 113-122. [Bayesian clustering analysis and the principle coordinate analysis showed that *R. osiliensis* and *Rhinanthus* sp. from Gotland are genetically differentiated and could not be the same species. Further research needed.]

Tashev, A., Koev, K., Tashev, N. and Georgiev, S. 2013. New data on the vertical distribution of some species of the flora in Bulgaria. Ecologia Balkanica 5(2): 7-11. [Recording new localities for *Pedicularis leucodon.*]

Těšitel, J., Těšitelová,, T., Fisher, J.P., Lepš, J. and Cameron, D.D. 2015. Integrating ecology and physiology of root-hemiparasitic interaction: interactive effects of abiotic resources shape the interplay between parasitism and autotrophy. New Phytologist 205(1): 350-60. [Describing a glasshouse experiment with *Rhinanthus alectorolophus*. Manipulating mineral nutrients and water. had profound interactive effects on the performance of both the parasite and its hosts, as well as the balance of above-ground biomass between them.]

The Long Ngo and Hölscher, D. 2014. The fate of five rare tree species after logging in a tropical limestone forest (Xuan Son National Park, northern Vietnam). Tropical Conservation Science 7(2): 326-341. [*Melientha suavis* (Opiliaceae) among species studied.]

Thiergart, T., Schmitz, U., Landan, G., Martin, W.F. and Dagan, T. 2014. Application and comparative performance of network modularity algorithms to ecological communities classification. Acta Societatis Botanicorum Poloniae 83(2): 93-102. [Including reference to *Cuscuta lupuliformis*.]

Toh, S., Holbrook-Smith, D., Stokes, M.E., Tsuchiya, Y. and McCourt, P. 2014. Detection of parasitic plant suicide germination compounds using a high-throughput *Arabidopsis* HTL/KAI2 strigolactone perception system. Chemistry & Biology 21(8): 988-998. [Showing that strigolactones and cotylimides promote an interaction between HTL/KAI2 and the F-box protein MAX2 in yeast, and that this effect can be used as a screening method. Some compounds identified in this way were shown to stimulate *Striga hermonthica* germination.]

Tóth, G., Sólyomváry, A., Boldizsár, I. and Noszál, B. 2014. Characterization of enzyme-catalysed endogenous β-hydroxylation of phenylethanoid glycosides in *Euphrasia rostkoviana* Hayne at the molecular level. Process Biochemistry 49(9): 1533-1537.

Trindade, R.C.P., de Lima, I.S., Sant'Ana, A.E.G.and da Silva, P.P. 2014. (Activity of plant extracts on mortality of moth caterpillars-of-crucifers, *Plutella xylostella* L. (Lepidoptera: Plutellidae).) (in Portuguese) Ciência Agrícola 11(1): 21-28. [No activity shown by extracts of *Ximenia americana*.]

Uddin, M.Z. and Hassan, M.D.A. 2014. Determination of informant consensus factor of ethnomedicinal plants used in Kalenga forest, Bangladesh. Bangladesh Journal of Plant Taxonomy 21(1): 83-91. [Some reference to *Cuscuta reflexa* but no detail in abstract.]

Udo, N.V., Effiong, O.O., Otu, O.V., Olusola, A.E. and Oleba, O.E. 2014. Comparative effects of *Aloe vera* gel and aqueous leaf extract of *Viscum album* on bilirubin excretion in streptozotocin - induced diabetic rats. International Journal of Biochemistry Research and Review 4(1): 99-115. [An extract of *V. album* enhances bilirubin excretion in diabetic and normal animals and is hepatoprotective.]

Ueno, K., Furumoto, T., Umeda, S., Mizutani, M., Takikawa, H., Batchvarova, R., and Sugimoto, Y. 2014. Heliolactone, a non-sesquiterpene lactone germination stimulant for root parasitic weeds from sunflower. Phytochemistry, 108: 122–128. [A novel germination stimulant, heliolactone, was isolated from sunflower root exudate. It is structurally related to carlactone. Nitrogen or phosphorus deficiency increased heliolactone production but did not affect production of sesquiterpene lactone germination stimulant costunolide.]

Vagelas, I. and Gravanis, F. 2014. *Phelipanche nana* (Reut.) Sojak parasitism on lentil (*Lens culinaris*) and parasitism of *P. aegyptiaca* on *Carduus marianus* in Thessalia region, Greece. Archives of Phytopathology and Plant Protection 47(16): 1956-1962. [*P. nana* recorded on estimated 150 ha of lentil. *P. aegyptiaca* on *C. marianus* on roadsides.]

van Vuuren, S., Williams, V.L., Sooka, A., Burger, A. and van der Haar, L 2014. Microbial contamination of traditional medicinal plants sold at the Faraday *muthi* market, Johannesburg, South Africa. South African Journal of Botany 94: 95-100. [*Hydnora abyssinica* among species showing bacterial contamination.]

Virtue, J., Prider, J. and Williams, A. 2014. Host range of branched broomrape (*Orobanche ramosa* subsp. *mutelii*) in South Australia. Plant Protection Quarterly 29(2): 46-54. [Among crop species, cultivars in the Brassicaceae were classified as high risk hosts Common vetch was the most susceptible legume host, while medics and clovers were less susceptible, and field peas were not hosts. Crops in Solanaceae and Cucurbitaceae were not as susceptible as reported elsewhere. Non-crop hosts were mostly in the Asteraceae and Brassicaceae.]

von Raab-Straube, E. and Raus, T. 2014. Euro+Med-Checklist Notulae, 3. Willdenowia 44(2): 287-299. [Including new records of *Bellardia* and *Epipactis* spp.]

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glutathione redox cycling by reactive oxygen species generated from mitochondrial respiration: protection against oxidant injury in H9c2 cells and rat hearts. Phytotherapy Research 28(7): 999-1006. [Assessing the role of β-sitosterol in the 'Yang-invigorating' action of *Cistanche tubulosa* and observing that its protective effect against myocardial ischemia/reperfusion injury was seen in female but not male rats *ex vivo*.]

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