

<b>Session Details:</b>	Wednesday 30 November 2011 <b>Concurrent Session 10 – Ecology of RNB</b> 1100 – 1230
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<b>Presentation Title:</b>	The symbiosis between <i>Listia</i> spp. and <i>Methylobacterium</i> and <i>Microvirga</i> rhizobia: specificity in epidermally infected legumes
<b>Presentation Time:</b>	1140 – 1200

*Lotononis* is a genus in the Crotonarieae tribe with a centre of origin in South Africa. The taxonomy has recently been revised and the three distinct clades of this genus are now recognised at the generic level as *Listia*, *Leobordea* and *Lotononis sensu stricto* (Boatwright *et al.*, 2011). Different symbiotic specificity groups exist within *Lotononis sensu lato*, which is nodulated by a remarkable diversity of rhizobia. *Leobordea* and *Lotononis s.str.* species form indeterminate nodules and are more or less promiscuous. Rhizobia associated with these legumes are related to *Bradyrhizobium* spp., *Ensifer meliloti*, *Mesorhizobium tianshanense* and *Methylobacterium nodulans*, based on sequence analysis of the 16S rRNA gene. *Listia* species are waterlogging tolerant, have adventitious roots and form lupinoid nodules. They are specifically nodulated by pink-pigmented methylobacteria that are effective nitrogen fixers on all studied species, with the exception of *Listia angolensis*, which forms ineffective nodules with these rhizobia (Yates *et al.*, 2007). *L. angolensis* forms effective nodules only with novel rhizobial species of the Alphaproteobacterial genus *Microvirga* (Ardley *et al.*, submitted paper). The *nodA* sequences of the *Lotononis s. l.* rhizobia are polyphyletic and group according to microbial chromosomal background rather than host plant taxonomy. *L. angolensis* and *Listia bainesii* appear to be infected via epidermal entry, with no formation of infection threads, and are examples of symbiotic specificity in a non root-hair-mediated infection process. The genomes of *Methylobacterium* sp. 4-46 and *Microvirga* strain WSM3557 have been sequenced and will greatly aid an understanding of the genetic underpinnings of these symbioses. A preliminary analysis of the WSM3557 genome compared with that of *M. sp. 4-46* will also be presented.

**Boatwright, J. S., Wink, M. & van Wyk, B.-E. (2011).** The generic concept of *Lotononis* (Crotonarieae, Fabaceae): Reinstatement of the genera *Euchlora*, *Leobordea* and *Listia* and the new genus *Ezoloba*. *Taxon* **60**, 161-177.

**Yates, R. J., Howieson, J. G., Reeve, W. G., Nandasena, K. G., Law, I. J., Bräu, L., Ardley, J. K., Nistelberger, H. M., Real, D. & O'Hara, G. W. (2007).** *Lotononis angolensis* forms nitrogen fixing, lupinoid nodules with phylogenetically unique, fast-growing, pink-pigmented bacteria, which do not nodulate *L. bainesii* or *L. listii*. *Soil Biology & Biochemistry* **39**, 1680-1688.