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# The exploitation of epichloae endophytes for agricultural benefit

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Slatyer seminar room R.N. Robertson Building (Bldg. 46), Linnaeus Way, ANU



Epichloae endophytes of family Clavicipitaceae (comprising genera *Epichloë* and *Neotyphodium*) are fungal symbionts of Pooideae grasses. These endophytes can enhance their hosts' survival through protection from abiotic and biotic stresses and can thus be utilized in an agricultural context. Animal-safe grass-endophyte associations that confer bio-protective properties for increased pasture persistence and productivity have been developed and commercialized. One of the crucial drivers underpinning the selection of epichloae strains for commercial development is endophyte derived bioactivity. The potential of next generation endophytes is determined by testing a number of attributes such as agronomic fitness, animal and food safety as well as compatibility with host plants of interest. Strategic research supports these activities by focusing on elucidating mechanisms of compatibility between host and fungal symbiont, as well as investigating other molecular drivers of symbiosis such as siderophore mediated iron-uptake, fungal signalling, fungal growth in host plants and fungal

secondary metabolism. Different strands of multidisciplinary research aimed at ultimately exploiting epichloae endophytes for increased pasture performance will be described as well as the developing utility of Epichloae endophytes for bio-protection of modern cereals.

Presented by

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