5-15 Poster

ASEXUAL GRASS ENDOPHYTE SYMBIOSIS – MUTUAL EXPLOITATION OR RECIPROCAL COOPERATION?

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Asexual endophyte-grass associations are generally viewed as the epitome of specialized mutualism because of reciprocal benefits to the partners. Endophytes receive nutrition, protection and vertical transmission from plant to offspring via host seeds, while the host may benefit from enhanced competitive abilities and increased resistance to herbivores, pathogens and various abiotic stresses. However, increasing evidence suggests that these interactions can vary from antagonistic to mutualistic. Here, I propose that benefits to the partners are only rarely symmetric and conflicting selection forces such as (1) the asymmetry in dependence, (2) conflicts between host and fungal reproduction, (3) genetic mismatch between the partners, and (4) energetic costs of harboring the endophytic fungus might destabilize the symbioses. Accordingly, life histories of grass endophytes are likely to be dynamic in evolutionary time. The question is how ecology and genetics interact to shift fungal life history traits between the extremes of sexuality and asexuality and pathogeneity and mutualism.