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Clavicipitaceous endophytes in grass species; guardians against herbivores evolved from plant pathogen.(Biological Interactions in Arable Land-Grassland-Forest Continuums and their Impact on the Ecosystem Functions, 7th International Symposium on Integrated Field Science)

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Clavicipitaceous endophytes in grass species; guardians against herbivores evolved from plant pathogen.

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Endophytic fungi belong to the clavicipitaceae family (clavicipitaceous endophytes), are very common among grass species and known to have variouls influences for host plants (Rodriguez et al. 2009; Clay and Schardl, 2002). Their effects are not limited within the hosts, but can be extended to the entire ecosystem, trough the modification of food chain and flow of elements in which the plants are involved (Omacini et al. 2001, 2004). Among the endophytes, *Neotyphodium* endophytes, asexual fungi derived (/evolved) from pathogen causes disease on plant inflorescences (*Epichloë* species), are famous for their ability to form permanent association with their hosts through seed transmission, and provide protection to insect herbivory by producing anti-insect compounds (Clay and Schardl, 2002). Since the endophytes often associated with grass species used as forage and turf (Sugawara et al., 2006), we are tring to use a species of them for forage grass breeding, rivaling with other research groups in the world, help prevent propergation of insect pests in meadows and reduce their population, hence damage caused by them, in the entire agro-ecosystem including other commercial crops such as rice (Shiba and Sugawara, 2008). The endophytes also getting attention as they look abondant and can be found from diverse grass species, not only in continents but also here in Japanese islands (Sugawara et al., 2009), and likely to be protecting seeds of host grasses from insect predetors (Maruyama et al., 2009). International symposium about the endophytes will be held hosted by the University of Kentuky, USA, in the summer of 2010 (http://www.ca.uky.edu/msaisefg/).

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