Biology, ecology and evolution of the family Gigasporaceae, arbuscular mycorrhizal fungi (Glomeromycota)

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1. Based upon life history strategy (LHS) studies, Gigasporaceae are "K" strategists in contrast to single spore-producing "*Glomus*" species (this thesis).

2. As a result of their LHS, Gigasporaceae are negatively selected in arable lands (this thesis).

3. Arbuscular mycorrhizal fungi possess high levels of polymorphisms among rDNA copies within an individual. Proper characterization of this intraspecific polymorphism of rDNA copies is a powerful means for "species" identification in Gigasporaceae (this thesis).

4. Ancient asexuals are considered evolutionary scandals, as evolutionary theory predicts that they should go extinct. Parasexual recombination might be a way for Arbuscular Mycorrhizal Fungi (AMF) to overcome their lack of sexual recombination (this thesis).

5. Deciphering patterns of inter- and intraspecific polymorphisms of multicopy genes can provide highly resolved data on phylogenetic relationships at the genus and species levels and provide insight into the evolutionary mechanisms operating in AMF (this thesis).

6. The statement that "without data on fitness, hypotheses about the adaptive significance of phenotypes or basic mechanisms of evolution, for example natural selection, remain speculative" (Pringle & Taylor, TRENDS in Microbiology, p. 1-8, 2002) is correct.

7. Progress in Arbuscular Mycorrhizal ecology will proceed via the integration of traditional spore picking- base methods and molecular tools; the use of either approach independently will lead to an incomplete picture.

8. Vegetative compatibility tests together with molecular characterization are a good starting point to resolve species boundaries in AMF in order to be able to clarify their ecology and evolution.

9. I agree that, "reproductive isolation is a central feature of the biological species concept and has always created great difficulty in the treatment of organisms that reproduce asexually" (Liu & Stahl p.114-134. Manual Env. Microbiology 2nd ed, 2002).

10. Migratory ducks overwinter in a hot spot … what are they doing during the winter season in The Netherlands …

11. "There is no mind trouble that a good surf session can not cure …" (adapted from a bumper sticker)

12. Excellent is the foremost enemy of the good.

13. The Brazilian program for scientific and technological development (CNPq) is very good to capacitate Brazilian scientist abroad.

These propositions are part of the Ph.D. thesis **"Biology, ecology and evolution of the family *Gigasporaceae*, Arbuscular Mycorrhizal Fungi (*Glomeromycota*)"** by Francisco Adriano de Souza

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