

An executive summary of the final report of work done on the Minor Research Project of **Dr Melwyn D' Cunha SJ**, entitled "**Occurrence and distribution of Arbuscular Mycorrhizal Fungi (AM fungi) in coastal sand dune legume vegetation of Dakshina Kannada in relation to soil and soil parameters**", sanctioned by UGC, vide sanction letter No. **MRP (S)-1116/11-12/KAMA002/UGC-SWRO** dated **13th July 2012**

The seasonal investigation of AM fungi associated with wild legume *Canavalia maritima* in moderately disturbed dunes and severally disturbed dunes of the southwest coast of India revealed 23 species in and 16 species severally disturbed dunes. The total species, spores and diversity were highest during post-monsoon in and during monsoon in severally disturbed dunes, while arbuscular colonization was by and large highest in post-monsoon in both locations. The presence of legumes except *Canavalia maritima* were comparatively rare. *Scutellospora calospora* was most common followed by *Gigaspora margarita* and *Scutellospora pellucida*. Species richness, spores and arbuscular colonization in were not significantly correlated with eight rhizosphere edaphic features studied.

In severally disturbed dunes except for arbuscular colonization, species richness was positively correlated with moisture and organic carbon, while spore density only with moisture. In both locations, organic carbon was positively correlated with moisture. The quantity of organic carbon is relatively lower in severally disturbed dunes than and predicted such loss was due to severe erosion or human interference, which resulted in impoverished AM fungi in severally disturbed dunes. The intermediate scale of disturbance is beneficial in dispersing plant and AM fungi to the new sites, and provides more space, moisture and nutrients. It is realized that the belowground diversity of AM fungi is one of the major factors in CSD supporting diversity and structure of plant communities and in turn the ecosystem function. It is necessary to understand the impact of disturbance on AM fungal sporulation in sparsely vegetated coastal dunes.

Future outlook would be to isolate the spores from the coastal legumes and perform mesocosm experiments with pure culture (AM spores) inoculation to specific plant/s will confirm. The pollution level of coastal sand dunes due to various industrial effluents and nitrogenous fertilizers, household chemicals and heavy metals needs to be further investigated.