



9th ICEEE – 2018 International Conference on
“Climatic Change and Environmental (Bio)
Engineering”
22nd - 24th of November, 2018
Budapest, Hungary



ROLE OF PLANT-MYCORRHIZA SYMBIOSIS IN REVEGETATION OF DISTURBED MINING SITES IN INDIA (NORTH TELANGANA)

Dayakar Govindu^{1,2}, Sheak Rehana Begum¹, Srinivas Podeti¹, Borbala Biro²

¹Kakatiya University, Warangal, India; ²Szent István University, Budapest, Hungary

Extensive mining activities develop with energy requirements of globalizing World. Both underground- and open cast mining are resulting disturbed soil surfaces, which need to revegetate for environmental safety. Coal mining sites at North Telangana region of India was investigated. Soils are poor habitats for any plant establishment; the growth and survival of revegetated plants are possible only with arbuscular mycorrhiza (AM) fungal inoculation. Two leguminous agroforestry tree species were selected (*Acacia nilotica*, A.n. and *Albizia lebbeck*, A.l.). AM fungal spores were isolated and based on their morphological structures, 5 different types of AM species, the *Glomus*-, *Gigaspora*-, *Acaulospora*-, *Scutellospora*- and *Sclerocystis* sp. were identified. We have investigated the AM colonization rates, efficiency of selected strains in green houses and also at coal mine dumps by inoculation experiments on two test plants. AM fungal strains were found to be effective for the selected leguminous tree species both in their natural forests and at disturbed soils. *Glomus* sp. was the most dominant among the five different AM fungal species, more particularly *G. aggregatum*, *G. fasciculatum*, *G. intraradices* showed the best colonization and biomass production with the test plants. The AMF isolates from natural forests are supporting the revegetation of the disturbed mining sites. Preselection is needed for considering the environmental protection and the best soil functioning.

Keywords: mining sites, revegetation, AM fungi, isolation, inoculation

Corresponding address:

Dayakar Govindu
Department of Soil Science and Water Management
Faculty of Horticulture
Szent István University
H-1118 Villányi ut 29-43, K building, Room 331.
Budapest, Hungary
Telephone/mobile: +3630-7200-663
E-mail: biro.borbala@kertk.szie.hu