**Abstract**

The numerous benefits contributed by arbuscular mycorrhizal (AM) fungi has lead to recognition of their benefits in sustainable agriculture and various natural environmental processes. Application of anthropogenic and other compounds intentionally in the form of pesticides, fungicides, fertilizers or unintentionally like polycyclic aromatic hydrocarbons (PAH) which affect soil fungi have shown varying effects on AM association. Not all organic pollutants are detrimental to AM fungi. Some fungicides such as Fludioxonil have a stimulatory effect on mycorrhizal formation and function. Rapid decrease in the metabolic activity of AM fungi, a decline in arbuscule production, which is the main site of nutrient exchange between the host plant and the fungus, reduction in the total root length colonized and slow colonization rates are the negative effects shown by certain fungicides. Pesticides generally inhibit AM colonization and spore numbers. Slow release mineral fertilizers though benefit AM fungi, their excessive use can result in suppression of the AM fungi. Certain PAH especially anthracene reduce the development of extra radical mycelium, sporulation, root colonization and spore germination. Different AM fungal species show differential sensitivity even within a particular class of organic pollutant. Caution should also be exercised while irrigating soils with effluents as these could affect AM fungi. A reduction in our dependency on conventional agricultural practices especially organic pesticides by using AM fungi as a biological tool which is possible only by maintaining low levels of organic pollutants in the soil. Minimal use of organic pollutants especially pesticides would enable the maintenance of a healthy AM fungal populations essential for sustainable plant production systems.