**Abstract**

We examined the root morphology and mycotrophy of *Disperis neilgherrensis* Wight., growing in the Western Ghats of south India for the first time. The root system was sparse consisting of white to off white, 0.28 ± 0.11 mm thick roots arising from short brown rhizome. The roots were covered by root hairs (19.2 ± 1.5 per mm of root) 161.80 ± 12.68 µm long and 4.55 ± 1.17 µm thick. Root cortical cells contained fungal structures typical for orchid mycorrhizal (OM) and arbuscular mycorrhizal (AM) types. In contrast, rhizomes contained only OM fungal structures. The OM colonization was characterized by both lightly and darkly staining pelotons with regularly septate hyphae of varied diameters. Intracellular aseptate hyphal coils, arbusculate coils and intracellular vesicles characterized AM colonization. The percentage of length with OM colonization was 56.51% for roots and 73.64% for rhizomes, whereas the root length with AM fungal colonization was 30.23%. The AM type in D. neilgherrensis corresponds to the Paris-type.