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Presenter Information

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Root colonization by arbuscular mycorrhizal fungi in plants of Lhalu Wetland

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Introduction As a typical highland marshland type wetland, Lhalu wetland is the highest and biggest urban wetland in the world. It plays an important role in the improvement of Lhasa's ecological environment and is regarded as the lung of Lhasa City or its kidney. But in the past, it was strongly disturbed by human activities. Arbuscular mycorrhizal fungi (AMF) have been proved to have potential of increasing plant diversity (van der Heijden et al., 1998), and it is also ubiquitous in wetland habitats (Cooke and Lefor, 1998). It follows that mycorrhizal associations forming might be an essential part of wetland biological functions. We undertook this study as an initial survey of AMF colonization in fens plants of Lhalu wetland.

Materials and methods The survey was conducted at Lhalu wetland (91°03'48.5"~91°06'54.4"E, 29°39'46.3"~29°41'05.5"N), which is located in the northwest of Lhasa city. Soil cores (6-cm diameter) were collected to a depth of 20-30 cm from 16 most common plant species within the wetland on August 10th, 2006. Three individuals of the same plant species were randomly selected. Healthy (white, turgid) roots were picked from each of the soil cores for AM fungal colonization.

Results and discussion Of the 16 species surveyed, 10 formed fully developed arbuscular mycorrhizas, with arbuscules (and/or coils) and vesicles in at least one individual. An additional three species hosted aseptate hyphae and vesicles characteristic of AMF, but contained no arbuscules or coils. Three species (*Hippuris Vulgaris*, *Polygonum hydropiper*, and *Phragmites australis*) contained no AMF structures. Total colonization ranged from 0 to 82.6%, and arbuscular colonization ranged from 0 to 55.6%. In this survey, plants in the wetland belong to Cyperaceae, Polygonaceae and Juncaceae, which were presumed to be nonmycorrhizal or rarely mycorrhizal (Muthukumar et al., 2004), were colonized at different level. This result is similar to the report of Cooke and Lefor (1998).

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