Screening Commercial Peat and Peat-based Products For the Presence of Ericoid Mycorrhizae

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Pieris floribunda, mountain andromeda, belongs to the family Ericaceae. This species, along with other members of this family, including *Rhododendron*, *Vaccinium*, *Kalmia*, and *Calluna*, are important plants in the landscape trade, especially in the northern regions. Many of these species are evergreen and, therefore, provide color in an otherwise stark winter landscape. Members of the Ericaceae lack root hairs. Instead, it is hypothesized, the roots form a unique association with ericoid mycorrhizal fungi. These fungi have been demonstrated to: aid in nitrogen and phosphorous availability and uptake, increase water uptake capability, increase lateral root branching, extend the overall root mass, and protect from certain toxic substances.

In this study, trials were conducted using seedlings of *P. floribunda,* as a model plant, to determine the presence or absence of these fungi in various commercial brands of peat and peat-based products. The geographical source and strata of harvest was identified for each product. An attempt was made to determine if the source and strata of harvest of the peat as well as any subsequent processing or handling effected the presence of ericoid mycorrhizal fungi.

Seed of *P. floribunda* was surface-sterilized and germinated aseptically in petri dishes containing water agar. Seedlings were transferred to Magenta boxes and

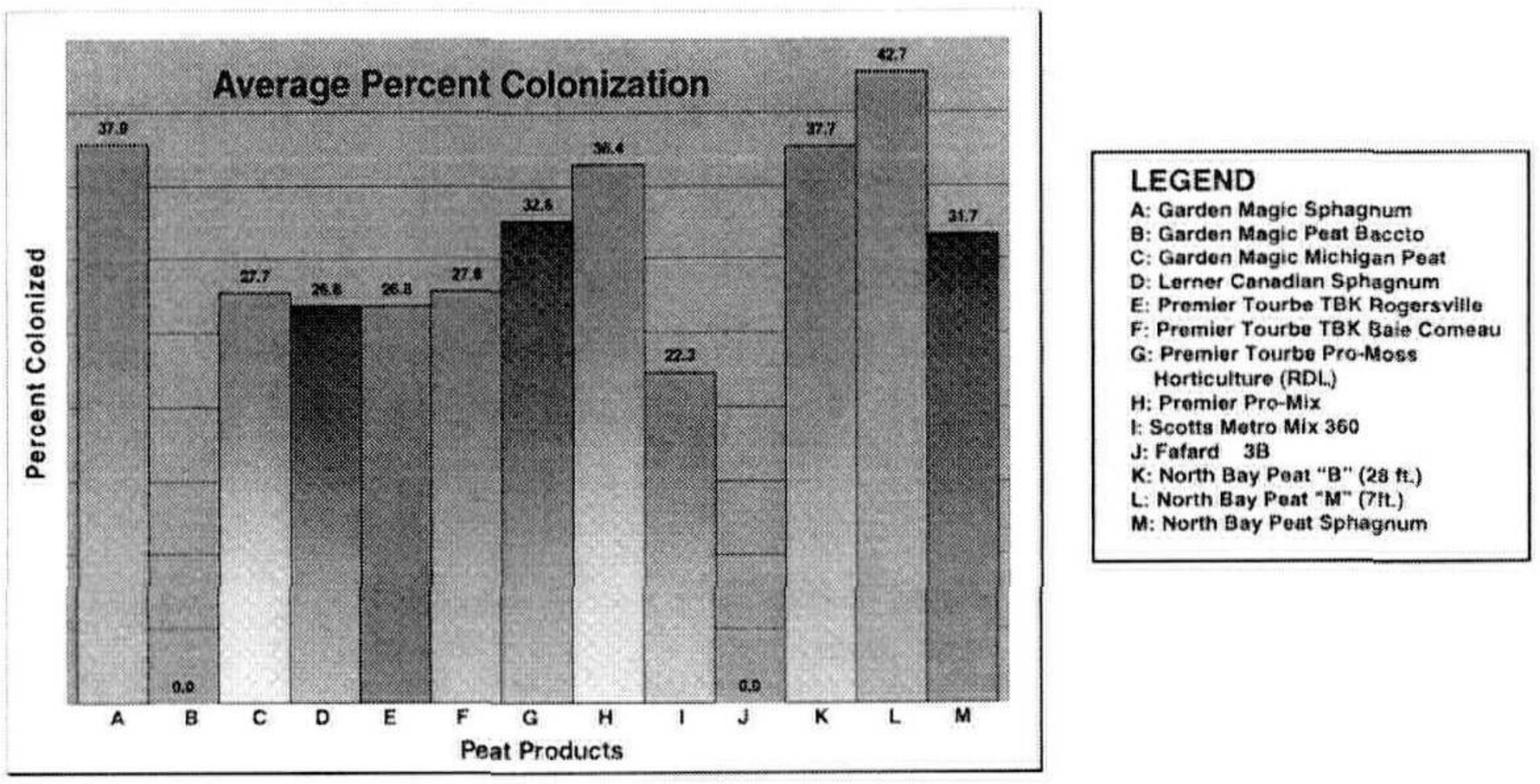

Figure 1. Average percent colonization of *Pieris floribunda* roots by ericoid mycorrhizal fungi in various commercial brands of peat and peat-based products.

grown in a growth chamber in select peat and peat-based products for 75 days. After 75 days, roots were harvested and evaluated for the presence of ericoid mycorrhizae. Roots were washed, cleared, and stained with chlorazole black E, a fungal-specific stain. The stain adhered to the fungus in colonized root cortical cells. Three sections of each root mass were randomly selected and colonized roots were counted. Average percent colonization of six replicates was determined for each root mass from every peat and peat-based product.

Preliminary results indicate that all commercial brands of media except Green Magic Peat Baccto® and Fafard® showed the presence of ericoid fungi (Fig. 1). None of the seedlings grown in Fafard® survived to harvest except the seedling grown in the sterilized (autoclaved) negative control. North Bay Peat harvested from the middle strata (approximately 7 ft) showed the highest percent root colonization.

Use of peat and peat-based media containing ericoid fungi for the propagation and growth of ericaceous species should benefit the production of these landscape plants. Further studies must be conducted to determine the cause of the differences in colonization relative to peat source and strata and whether increased colonization effects the growth of the host plant.