

Table 16.8. The ability of ectomycorrhizal fungal isolates to utilise gliadin, an organic nitrogen source, in relation to the substrate from which the isolates originated. Isolates obtained from ectomycorrhizas and fruit bodies from four spruce sites along a North-South European transect. (Sites: Åheden - Northern Sweden; Klosterhede - Western Jutland, Denmark; Waldstein - Fichtelgebirge, Germany; Aubure - Vosges Mountains, NE France)

Site	Isolate/species ¹	Substrate ²	Growth ³	
			Org N + glucose	Org N - glucose
Åheden	<i>Dermocybe semisanguinea</i> (F)	n/a	+	+
	<i>Hebeloma subsaponaceum</i> (F)	n/a	+	-
	<i>Tricholoma flavovirens</i> (F)	n/a	+	+
	<i>Cenococcum geophilum</i> (M)	Org	+	-
	<i>Cortinarius</i> sp 1 (M)	Min	+	-
	<i>Cortinarius</i> sp 2 (M)	Org	+	+
	<i>Tylospora fibrillosa</i> (M)	Org/Min	(+)	-
	E-Type (M)	Org/Min	+++/-	++/-
	Unknown 1 (M)	Org/Min	+	+
	Unknown 3 (M)	Min	+	+
	Unknown 4 (M)	Org/Min	+++	+++
	Unknown 8 (M)	Org	(+)	(+)
	Unknown 12(M)	Min	+	-
Klosterhede	<i>Hebeloma</i> sp.(F)	n/a	+++	+++
	<i>Laccaria amethystina</i> (F)	n/a	+	-
	<i>Xerocomus badius</i> (F)	n/a	+	-
	<i>Cenococcum geophilum</i> (M)	Min	+/-	+/-
	<i>Picierhiza punctata</i> (M)	Org/Min	-	-
	<i>Russula</i> sp (M)	Org	+	-
	<i>Tylospora fibrillosa</i> (M)	Org/Min	(+/-)	-
Waldstein	<i>Lactarius rufus</i> (F)	n/a	(+)	-
	<i>Paxillus involutus</i> (F)	n/a	-	-
	<i>Xerocomus badius</i> (F)	n/a	(+)	-
	<i>Tylospora fibrillosa</i> (M)	Org/Min	(+/-)	-
Aubure	<i>Amanita spissa</i> (F)	n/a	+	+
	<i>Hebeloma mesophaeum</i> (F)	n/a	+++	++
	<i>Xerocomus badius</i> (F)	n/a	-	-
	<i>Cortinarius</i> sp (M)	Org	(+)	-
	E-Type (M)	Org	++	++
	<i>Piceirhiza gelatinosa</i> (M)	Org/Min	+	-
	<i>Tylospora fibrillosa</i> (M)	Org/Min	+	-

¹ Origin of isolate: M= mycorrhizal isolate, F= fruit body isolate

² Soil fraction in which the ectomycorrhizal tips were found, Org = Organic, Min = Mineral, n/a = not applicable

³ Diameter of fungal colony after 1 month on solid agar medium containing the insoluble plant protein gliadin as the sole nitrogen source, ± glucose as a carbon source. (+) slight growth; + 1-3cm; ++ 3-6cm; +++ > 6cm; / intraspecific differences between isolates of the same species.