

[Carbohydr. Res., 251, 81-87 (1994)]

[Lab. of Hygienic Chemistry]

**Structural Features and Hypoglycemic Activities of Two Polysaccharides
from a Hot-Water Extract of *Agrocybe cylindracea*.**

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A glucan (AG-HN1, $[\alpha]_D^{24}$) and a heteroglycan (AG-HN2, $[\alpha]_D^{26}$) were isolated from a hot-water extract of the fruiting bodies of *Agrocybe cylindracea*. The results of chemical and spectroscopic investigations indicated that high molecular weight glucan AG-HN1 is primarily a β -(1 \rightarrow 6)-branched (1 \rightarrow 3)- β -D-glucan containing small amounts of (1 \rightarrow 4)-linked and (1 \rightarrow 6)-linked glucopyranosyl residues. Low molecular weight heteroglycan AG-HN-2 is composed of galactose, glucose, fucose, and mannose. AG-HN1 showed a remarkable hypoglycemic activity in both normal and streptozotocin-induced diabetic mice by i.p. administration, and its activity was higher than that of AG-HN1.

[Yakugaku Zasshi, 114, 308-315 (1994)]

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**Polysaccharides in Fungi. XXXIII. Hypoglycemic Activity of an Acidic
Polysaccharide (AC) from *Tremella fuciformis*.**

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Glucuronoxylomannan (AC) from the fruiting bodies of *Tremella fuciformis* exhibited a significant activity in normal and streptozotocin-induced diabetic mice by i.p. administration. AC raised the plasma insulin level in normal mice. AC lowered the plasma cholesterol level. It was indicated that the hypoglycemic activity of AC in normal mice was at least responsible for the increase of insulin secretion and for the acceleration of glucose metabolism. Continuous oral administration of the AC solution for a long time was found to be effective on the plasma glucose level in both experiments with streptozotocin.

[Biol. Pharm. Bull., 17, 1460-1462 (1994)]

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**Polysaccharides in Fungi. XXXIV. A Polysaccharide from the Fruiting
Bodies of *Amanita muscaria* and the Antitumor Activity of Its
Carboxymethylated Product.**

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A water-insoluble, alkali-soluble glucan (AM-APP) was isolated from the alkaline extract of the fruiting bodies of *Amanita muscaria*. The results of chemical and spectroscopic investigations indicate that AM-APP is a linear (1 \rightarrow 3)- α -D-glucan with a molecular weight of about 42,000. Its carboxymethylated product showed potent antitumor activity, although the native polysaccharide had little effect. The degree of substitution of carboxymethyl groups was 0.95 and the substituents were located at O-2, at O-4, at O-6, at O-2 and O-6, and at O-4 and O-6 on glucose.