

[Carbohydr. Res., 189, 273 (1989)]

**(1→3)- $\alpha$ -D-Glucan from an Alkaline Extract of *Agrocybe cylindracea*,  
and Antitumor Activity of its O-(carboxymethyl)ated Derivatives.**

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The structure of an alkali-soluble D-glucan (AG-AL) from the fruit body of *Agrocybe cylindracea* was investigated by a combination of chemical and spectroscopic methods indicating that it was a linear (1→3)- $\alpha$ -D-glucan (molecular weight,  $\sim 560,000$ ),  $[\alpha]^{20}_D + 195^\circ$  (M sodium hydroxide). Both water-soluble and gelatinous products obtained by O-(carboxymethyl)ation of AG-AL showed potent antitumor activity against the solid form of sarcoma 180 in mice, although the native D-glucan had little effect on the tumor.

[Chem. Pharm. Bull., 37, 2770 (1989)]

**Polysaccharides in Fungi. XXIV. A (1→3)- $\beta$ -D-Glucan from the Alkaline  
Extract of the Insect-Body Portion of Chán huā (Fungus : *Cordyceps*  
*cicadae*).**

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A water-insoluble glucan (CI-6P),  $[\alpha]^{20}_D + 7.3^\circ$  (0.5M sodium hydroxide), was isolated from the alkaline extract of the insect-body portion of chán huā (Chinese name) (fungus : *Cordyceps cicadae*), and its molecular weight was estimated to be ca. 21000. From the results of methylation analysis, periodate oxidation, Smith degradation, enzymic hydrolysis, and  $^{13}\text{C}$ -NMR spectroscopy, it was concluded that CI-6P was composed of a backbone of  $\beta$ -(1→3)-linked D-glucopyranosyl residues, and side chains of a single,  $\beta$ -(1→6)-linked D-glucopyranosyl group attached, on average, to every 25th residue of the backbone. CI-6P and its carboxymethylated glucan exhibited antitumor activity against sarcoma 180 in mice.

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**Amino Acid Sequence of Nerve Growth Factor Purified from the Venom  
of the Formosan Cobra *Naja naja atra*.**

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Nerve growth factor (NGF) was isolated from the venom of the Formosan cobra (*Naja naja atra*). The amino acid sequence was determined by a combination of conventional methods. The total number of amino acid residue was 116, giving a molecular mass of 13,507 Da. The sequence was identical with that deduced from the nucleotide sequence of an NGF cDNA from the venom gland of *Naja naja siamensis*, reported by Selby *et al.* The lower biological activity might be explained by the amino acid replacements around position 33, which residue is speculated to be involved in receptor binding or replacement of the histidine residue at position 84, which is one of the histidine residues shown to be essential for the biological activity from chemical modification experiments.