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[Lab. of Hygienic Chemistry]

Forensic Chemical Study on Fibers by Acid-Catalyzed and Alkali-Catalyzed Pyrolysis Gas Chromatography.

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By acid-catalyzed and alkali-catalyzed pyrolysis gas chromatography (PyGC), we analyzed synthetic fibers such as acrylic, 6-nylon, polyester, polyurethane, vinylon, polypylene, acetate and viscose rayon, and natural fibers such as cotton, wool, silk and hemp. The results suggested that forensic identification of minute fiber samples should be performed in the combination of conventional non-catalyzed and acid-catalyzed or alkali-catalyzed PyGC. Furthermore, we investigated the mechanism of acid-catalyzed and alkali-catalyzed pyrolysis, using deuterium-labeling acid and alkali in D₂O.

[KINOKO NO KAGAKU, 3, 53-60 (1996)]

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Studies on the Host-mediated Antitumor Polysaccharides. Part XXVII. Antitumor and Hypoglycemic Activities of Polysaccharides Isolated from Sclerotium "Charga" and Mycelium of *Fuscoporia obliqua* Mushroom Fungus.

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Several polysaccharides were extracted from sclerotium "Charga", and the cultured mycelium of *Fuscoporia obliqua*, a mushroom fungus, with hot water, 10% zinc chloride, and 10% sodium hydroxide. The enzymatic assay and the hypoglycemic test were carried out on the obtained samples. Water-soluble and water-insoluble polysaccharides fractions isolated from "Charga" had higher antitumor activities, and had higher hypoglycemic effects than the mycelium polysaccharides. The active principles were found to be β -D-glucans, heteroglycans, and their protein-complexes.

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[Lab. of Hygienic Chemistry]

Effect of 3-Deoxyglucosone on the Activities of Enzymes Responsible for Glucose Metabolism in Mouse Liver.

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Crude extracts containing the enzymes obtained from mouse liver were incubated with 3-deoxyglucosone (3-DG), and then subjected to assay of the activities of the enzymes responsible for glucose metabolism. Hexokinase and glucose-6-phosphate dehydrogenase activities were decreased by 3-DG and hexokinase activity was strongly inhibited time and concentration dependently, while glucokinase, glucose-6-phosphatase, and phosphofructokinase activities were scarcely affected. These results suggest that 3-DG inhibits the intake of glucose in the liver and a connection with development of diabetes.