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Tumor-growth inhibitory activity of the terpene compound isolated from Buna-Shimeji mushroom (ブナシメジから単離されたテルペン化合物の腫瘍増殖抑制作用)

We have found that Buna-shimeji mushroom, *Hypsizigus marmoreus*, inhibits tumor growth of murine Sarcoma-180 (S-180) by oral administration of the powdered fruiting body mixed with the standard feed,CE-2. Oral administration of fractions from silica gel 60 column chromatography of the mushroom extract was carried out to identify the inhibitory compound.

The ethyl acetate extract of the powdered fruiting body was applied to a silica gel 60 column. Following washing by ethyl acetate, the fractions were eluted by acetone, 100% ethanol and 80% ethanol. These fractions were dried and prepared for administration at feeding, along with powdered CE-2.

Allogeneic S-180 tumor cells were inoculated subcutaneously into female ICR mice (5 weeks old), and syngeneic IMC carcinoma cells were inoculated into female CDF_1 mice (6 weeks old).Administration of the prepared fractions was started 7 days after the tumor transplantation. Tumor growth inhibitory activity was evaluated using the tumor volume calculated by the following formula :tumor volume(mm^3)＝(tumor length)x(width)^2/2.

Dose-dependent tumor-growth inhibitory activity against S-180 was observed by the administration of 5% and 10% powdered fruiting body-mixed feed (dose of fruiting body, ca.15 g/kg/day). About 3 g of the active substance (acetone fraction) was obtained from 250 g of powdered fruiting body by the silica gel fractionation.

Following the administration of 10% powdered fruiting body-mixed feed equivalent to the dose present in the acetone fraction (ca.250 mg/kg/day) the inhibitory activity against S-180 was found 58.5%. The acetone fraction also exhibited similar inhibitory activity against syngeneic IMC carcinoma. The active substance was subsequently identified as the tandem-type polyterpene ($C_{45}H_{86}O_7$) by NMR and LC-MS analysis.