

## Antihypertensive Effect of *Lyophyllum decastes* Sing. in Spontaneously Hypertensive Rats

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*Lyophyllum decastes* Sing. belongs to the family Tricholomataceae and the edible mushrooms from the genus *Lyophyllum* have been considered to be difficult to cultivate artificially. It is also a mushroom homolog to *Lyophyllum decastes*. *Lyophyllum decastes* is rich in nutrient content such as potassium, vitamin B<sub>2</sub>, phosphorus, iron, and zinc. In addition, it is also rich in dietary fiber useful for treating constipation, and there is some potentiation of useful bacteria such as lactic bacteria in the intestine. Antitumor action and immune enhancement actions are reported as pharmacological actions. It has been confirmed that it is the polysaccharide of the mushroom that is effective for treating lifestyle illnesses and that there is some depressive effect of the angiotensin-converting enzyme (ACE) on elevated blood pressure. It has already been reported that some kinds of mushrooms, such as *Pleurotus sajor-caju* (Fr.) Sing. and beeches *Lyophyllum decastes*, *Celtis bamboos*, and *Grifola frondosa* (Dicks.: Fr.) S. F. Gray have a hypotensive effect. In this study, the hypotensive effect of *Lyophyllum decastes* was examined daily to investigate whether it has similar effects to *Lyophyllum decastes* on immune activity.

Hot water extraction for 3 hr in boiling water was performed using 5 kl of distilled water for 500 kg of living *Lyophyllum decastes* fruiting body. After the extract was concentrated by centrifuging, spray drying was performed and the

hot water extraction fraction (HWE) was obtained. Twenty milligrams of HWE were added to a 980-mg powder diet, and a 2% HWE mixed diet was produced. A 10% HWE mixed diet was also produced by the same method: 100 mg of HWE was added to 900 mg of powder diet. Ten 5-week-old male rats (SHR/Izm) were used. Solid feed was given to the control group, and solid feed including the HWE powder diet (CE-2) was given to the sample group. In the first 5 weeks, 2% HWE mixed with solid feed was given to the sample group, and the 10% HWE mixed with solid feed was given from 6 weeks. Using automatic sphygmomanometry equipment (UNICOM Inc.), blood pressure was measured once per week.

An elevated blood pressure inhibitory effect was noted, after the 2% HWE mixed diet was given for 5 weeks (control population, 202 ± 7.72 mm Hg; sample group, 191 ± 6.17 mm Hg). At 6 weeks, the dose was increased by 5 times, and blood pressure was significantly lowered (control population, 206 ± 5.23 mm Hg; sample group, 173 ± 2.43 mm Hg) in the first week, when a 10% HWE mixed diet was given ( $p < 0.01$ ). Thereafter, although the blood pressure of the control population rose, the sample group showed a significantly lower blood pressure after 4 months ( $p < 0.01$ ). Thus, we suggest that HWE has an effect of the control of blood pressure.