

Koroku Hashimoto*¹ and Fumihiko Yoshida*²: The Growth Promoting Effect of Molsin, a Preparation of Aspergillopeptidase A.

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The crystalline protease, Aspergillopeptidase A (E. C. 3, 4, 4, 17),¹⁾ isolated from *Aspergillus saitoi*, with pH optimum ranging from 2.5 to 3.0, was reported to have the ability to split protein molecules into smaller units than does pepsin.²⁾ Chronic toxicity of Molsin, a Preparation of the Aspergillopeptidase A, on the rats was studied for 1 year, of which results appear in the present paper.

Procedures

Eighty male rats of the Donryu strain each weighing 30 to 60 g. were obtained from commercial hatcheries.

All animals were maintained on a basal diet, "Oriental Compressed Diet (for Experimental Animals NM)" composed of water 7%, crude protein 25.8%, crude fat 5.2%, water soluble carbohydrate 51.4%, crude fiber 4.4% and ash 6.2%.³⁾

Of these animals, 60 showing better growth during a period of 4 weeks were selectively used and were uniformly divided into 3 groups with respect to number and weight.

The animals of groups A and B were fed with the basal diet with the supplement of 0.05 and 0.5% Molsin, and group C served as the control fed the basal diet alone. The temperature of breeding room was adjusted to $20 \pm 2^\circ$ and water was supplied ad libitum. Each animal was weighed at weekly intervals.

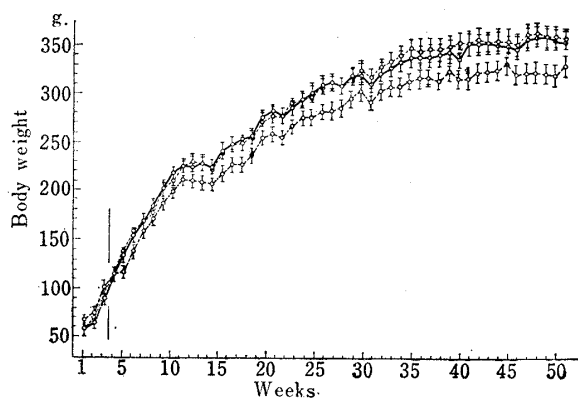


Fig. 1. Growth Rate Curves of Molsin Groups and Control Group (Vertical line representing standard error.)

--- test diet (A)
— test diet (B)
... control diet

Postmortem observation was done on the animals which died accidentally during one year of experimental period in order to examine the cause of death.

Results

1) Growth rate:

Body weights measured weekly are given in Fig. 1.

The growth rate of animals in groups A and B was significantly higher than that in the control. The growth rate in group A was almost equal to that in group B, although the dietary content of Molsin was 10 times larger in the latter than that in the former.

2) Autopsy:

The animals which died during 1 year numbered 2 in group A, 2 in group B, and

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5 in group C (control). Both gross and microscopic examinations revealed that the death resulted from pneumonia.

Discussion

During one year of experimental period, the growth rate was significantly higher in the Molsin groups than in the control, and no significant differences were noted in the growth rate between groups A and B, receiving 0.05 and 0.5% Molsin depend on the basal amount of diet. These doses correspond to 10 and 100 times the daily clinical dose.

Thus, growth promoting effect was significant, without any toxicities being encountered.

In the Molsin groups, the incidence of accidental death by pneumonia was found less than that in control. This fact may indicate that the usefulness of Molsin as a dietary supplement for maintaining animal's health.

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Summary

Molsin increased the growth rate of rats without any toxicities, when added in doses of 0.05 and 0.5% to the basal diet. The incidence of death resulting from pneumonia was found significantly less in Molsin groups than in the control.

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