ON VITAMINS IN SAKE-CAKE.

III. ON ERGOSTERIN IN SAKE-CAKE.

By

ELJI TAKAHASHI and H. LIM.

(Received Dec. 15 th., 1929).

The present paper deals with the separation of Ergosterin from Sake-Cake and Koji-fungus (*Aspergillus Oryzae*).

1 kg. of dried Sake-Cake was extracted with 85~95% alcohol at 80°C. The extract was evaporated and treated with ether. The substance soluble in the later solvent was separated and refined with acetone. 125 g. of oily substance thus obtained was next saponified with alcoholic potash solution and the unsaponifiable part was taken with ether. By evaporation, Sterin-substance which made of needle and plate like crystals was obtained. The melting point showed 137°C.

As it was considered from the result that the separated substance contained the other sterin having higher melting point than phytosterin, the biological test was next executed.

Albino rats was taken, Steenbock's No. 2965 was given as basal diet, the symptom of ricket was diagnosed by lentogen. When the rats were fed for 5 weeks with above diet, they indicated the characteristic pathological change at the end of shinbone. But by feeding the isolated crystals which were formerly irradiated, cured or prevented the disease. 1/500 mg. of the crystal was able for prevention and 1/50 mg. for cure.

The irradiation was done as follows:

The sample was dissolved in Petri-dish with ether, after evaporation was exposed to the light at the distance of 25 cm. for 40 minutes. The lamp was such small type as passing 2 ampere, 90~100 volt.

Further the separation of ergosterin from the Koji-fungus which was cultivated in the solution free from organic substance but sugar, was tried and the animal experiment was also done. By the same method as above 1.25 g. needle crystals were obtained from 500 g. sample. Its melting point was 163~165°C. $[\alpha]_D^{25} = -126^\circ$, these agree well with ergosterin.

The analytical result was as follows:

32.36 mg. sample gave CO₂ 100.33 mg. H₂O 31.89 mg.

	C	H
Calculated for C ₂₇ H ₄₂ O	84.75%	11.07%
Found	84.55%	10.95%

The experiment with rats showed 1/5000 mg. prevented the disease and 1/1000 mg. cured it after 3 weeks.