L. THE SYNTHESIS OF VITAMIN B BY YEASTS (PRELIMINARY NOTE).

BY ARTHUR HARDEN AND SYLVESTER SOLOMON ZILVA.

From the Biochemical Department, Lister Institute.

(Received May 5th, 1921.)

EXPERIMENTS on this subject have been in progress in this laboratory for a considerable time with the twofold object of ascertaining whether yeast grown on a medium devoid of vitamin B is able to produce this substance and whether different species of yeast all produce this vitamin. Our experiments are not complete but in view of the recent publication by Nelson, Fulmer and Cessna [1921] we think it desirable to make a brief statement of the results so far attained.

The method used consists in growing the yeast under examination on a synthetic medium containing ammonium phosphate and chloride as sources of nitrogen, together with the necessary mineral salts and cane-sugar. The cane-sugar was fractionally precipitated by alcohol from aqueous solution, and the solution of the dried purified material then shaken three times with fuller's earth to remove any possible trace of vitamin B.

The specimen of *S. cerevisiae* used had been isolated from a sample of baker's yeast, and *S. ellipsoideus* was also examined.

S. cerevisiae grew very slowly and imperfectly in the medium, whereas *S. ellipsoideus* grew much more rapidly and gave a larger yield.

The yeasts were centrifuged out of the medium, washed three times with distilled water, pressed and dried in the air. A parallel culture of *S. ellipsoideus* on unhopped brewer's-wort was made and the yeast crop treated in a similar manner.

The dried yeasts were then compared as regards their curative effect on pigeons suffering from avian polyneuritis as a result of a diet of polished rice, and showing retracted neck. Removal of this symptom for three days was regarded as a "standard" cure.

The following is a brief statement of the results.

Material	Dose g.	Effect
Brewer's yeast	1	Cure
" "	0.5	"
<i>S. cerevisiae</i> from synthetic medium	1	Temporary cure, but recurrence after 48 hours
<i>S. ellipsoideus</i> from wort	1	Cure
" " "	0.5	"
" " synthetic medium	1	" (lasting 4 days)
" " " "	1	" (" 6 ")
" " " "	0.5	Temporary cure, but recurrence after 48 hours

It appears therefore that *S. ellipsoideus* produces vitamin B and that the yeasts grown on the synthetic medium contain vitamin B, but not in so large a proportion as those grown on wort. Further experiments are in progress.

The expenses of this research were in part defrayed from a grant for which we are indebted to the Medical Research Council.

REFERENCE.

Nelson, Fulmer and Cessna (1921). *J. Biol. Chem.* **46**, 77.