

difference between the sum of the conductivities of the constituents and the observed conductivity of the mixture, is plotted against the concentration of the chloride solution. The graph gives a periodic curve with breaks corresponding to 1, 2 and 4 molecules of HCl for one molecule of HgCl₂. Thus the results afford the evidence for the presence of the following complex chloromercuric acids in a mixture of solutions of mercuric chloride and hydrochloric acid: HHgCl₃, H₂HgCl₄ and H₄HgCl₆. The corresponding potassium salts are also found to be present in a mixture of solutions of mercuric chloride and potassium chloride.

Detailed procedure with curves and the results will be published elsewhere.

I thank Dr. A. K. Bhattacharya for his helpful criticism and advice.
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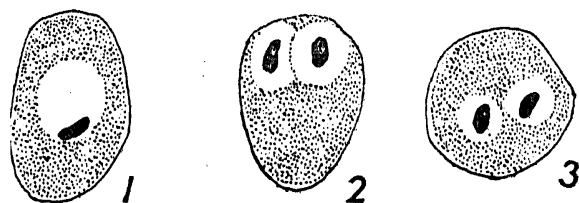
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1. Dey and Bhattacharya *Curr. Sci.*, 1945, 14, 69.

THE CYTOLOGY OF THE YEAST

THE striking advances in the realm of Cytology in recent years have unfortunately not embraced the industrially important micro-organisms, like yeast. The exact nature and behaviour of the nucleus in this important organism have remained more or less in the region of doubt.

A preliminary examination of smears of *Saccharomyces cerevisiae* (?), fixed and stained accordance with well-known methods, has revealed the following features. Wort cultures of a certain strain of *Saccharomyces cerevisiae* were left for 24 hours after which the wort was renewed as it is well known, that the organism goes into vigorous activity for a short period in the fresh wort. Smears were made during this short active span and fixed in Karpchenko's modified formula for Nawaschin, and in Levitski's mixture. The smears were then tested for the Feulgen's reaction after a mild acid hydrolysis. Individual cells show a clear cytoplasm enclosing a vacuole wherein are found one to about five Feulgen positive bodies (Figs. 1 to 5). These bodies are of



Figs. 1 to 4 × 3600

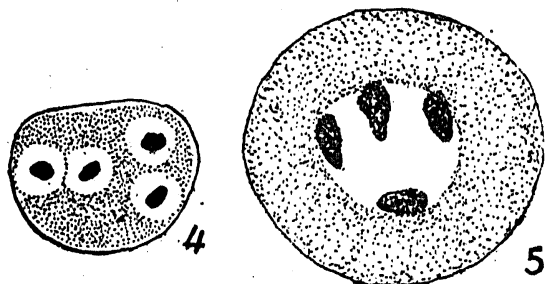


Fig. 5 × 4800

varying sizes and shapes in adjacent cells and appear in different sites of the intra-nuclear vacuole. They represent portions of the nuclear material. Apparently these are regions with an excessive charge of nucleic acid and remind us of the heteropycnotic areas so well known in nuclei. The varying sizes and shapes which these bodies present under the influence of the same fixative should be sufficient caution against succumbing to the easy temptation of mistaking these for actual chromosomes.^{1,2} This must be especially so in view of the fact that the dimensions of the chromosomes of an individual are genetically controlled.

The fact that the nuclear material of the yeast gives a positive Feulgen reaction imports into the picture the validity of the time honoured concept regarding the type of nucleic acid here. The yeast nucleic acid is believed to be a pentose nucleotide not incorporating a desoxy sugar. Since the Feulgen test is specific for desoxy-pentose nucleic acid, it raises the important question whether all the *Zygosaccharomyces* contain the pentose nucleic acid which is Feulgen negative and stable to the action of the acids.

Further work is in progress.
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January 7, 1946.

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1. Badian, M., *Bull. Int. Acad. pol.* 1937, B, 1, 1-5.
2. Subramaniam, M. K., and Ranganathan, B., *Curr. Sci.*, 1945, 14, 78.

ASPARAGINE FROM INDIAN PULSES

L-ASPARAGINE is a fine chemical in bacteriological and immunological routine; it provides an ideal source of organic nitrogen, readily assimilable by micro-organisms including yeasts. Considerable quantities of asparagine are employed in the production of tuberculin, diphtheria antitoxin, etc. Shortage of this fine chemical during war led us to investigate the possibility of preparing this chemical from indigenous sources. The four abundantly available pulses, green gram (*Phaseolus mungo*), black gram (*Phaseolus radiatus*), Bengal gram (*Cicer aritinum*), and horse-gram (*Dolichos biflorus*), have been studied for their capacity to yield asparagine on germination and growth. The method described by Vickery, Pucher and Deuber¹ has been closely followed in the preparation of etiolated seedlings.

EXPERIMENTAL

The seeds were steeped in running tap-water for 48 hours; after draining, the sprouting seeds were uniformly spread in trays furnished with fine wire-mesh and transferred to a cabinet provided with air-holes at the bottom and a flue at the top; this arrangement facilitated aeration of the growing seedlings. The seedlings grew in darkness, and were periodically sprayed with water. With a view to determine the day on which the maximum amount of asparagine was formed, the seed-