ABSTRACTS

DEPARTMENT OF BIOCHEMISTRY

1. SANITATION OF WATERS AROUND TOWNS AND CITIES. S. C. Pillai and C. Anandeswara Sastry, *Surgical & Medical News*, 1955, **1**, 51–56.

Uncontrolled discharge of sewage and similar wastes into rivers and other watercourses leads to insanitary conditions, the basic cause of which is the depletion of oxygen from the waters. The available evidence on the de-oxygenation and re-oxygenation processes in polluted waters is reviewed in this article, and the need for further information is indicated for explaining the mechanism of oxygenation of polluted waters and of sewage during rapid purification by the activated sludge process.

2. DEPLETION OF OXYGEN FROM POLLUTED WATERS. C. Anandeswara Sastry and S. C. Pillai, *Science & Culture*, 1955, **21**, 37–39.

The paper relates to the nature and extent of depletion of oxygen from waters polluted with different forms of organic matter. The experimental observations given in the paper show that depletion of oxygen from waters polluted with organic wastes is largely due to the associated microbial activity and that materials carrying more bacteria deplete more dissolved oxygen.

3. SOME ASPECTS OF DISPOSAL OF INDUSTRIAL WASTE WATERS. S. C. Pillai and C. Anandeswara Sastry, *Surgical & Medical News*, 1955, **1**, 59–64.

In this article the polluting character of various trade effluents and the methods employed in different parts of the world for their treatment and disposal are discussed and a possible line of future development is indicated.

PHARMACOLOGY LABORATORY

1. ON THE CONSTITUTION OF BONE SALT AND TRICALCIUM PHOSPHATE—PARTS I AND II. T. K. Wadhwani. *J. of the Indian Chem. Soc.*, 1954, **31**, 359–65.

Study has been made of the available data about the physical and chemical aspects of calcium phosphate, and about the physical, chemical and biochemical aspects of bone salt. In the light of the study thus made, it has been concluded that though both bone salt and calcium phosphate give an X-Ray spectrogram of an apatite, their composition is variable, and is essentially determined by the composition of the liquid phase and by the conditions under which these are precipitated. In view of the functions and behaviour of the bone salt *in vivo*, and of the behaviour of bone salt and calcium phosphate *in vitro*, it has been further concluded that both these substances consist of two parts, the labile and the non-labile.

The data are presented about (i) the nature of the exchange reaction between a solution of sodium fluoride and calcium phosphate, (ii) the mechanism of phosphate adsorption by bone salt and calcium phosphate, and (iii) the nature of anions in bone salt and calcium phosphate.

It has been shown that the manner in which the anions of calcium phosphate and bone salt react with the fluoride of the liquid phase can be mathematically represented by the Freundlich adsorption isotherm, and that the adsorption of phosphate by bone salt and calcium phosphate is regarded as ionic, involving the exchange of phosphate with the anions of these substances and that all the anions in these substances, at least theoretically, by the process of repeated equilibration, can be replaced with fluoride in the manner that can approximately be denoted by the Freundlich adsorption isotherm.

2. STUDIES ON THE CONTROL OF FERTILITY. M. Sirsi, *Souvenir, Mysore Med. Assoc.*, 1954.

The available data on the physiology of reproduction, the biochemical reactions involved about the metabolism of spermatozoa and ovum are reviewed in detail. The use of enzyme inhibitors like hespiridin, and anti-vitamin E factors in natural materials are suggested for practical use. Their limitations in use has also been indicated.

3. A METHOD OF BIOLOGICAL STANDARDISATION OF CRUDE TOTAL ALKALOIDS OF *Rauwolfia serpentina*. C. N. Shaw and M. Sirsi, *Curr. Sci.*, 1955, **24**, 39.

Crude extracts of *R. serpentina* alkaloids have been assayed on the seminal vesicle of the rat for the evaluation of sympatholytic action. This test has been standardised to give consistent qualitative and quantitative results.

4. OXYSPORIN, A NEW ANTIBIOTIC FROM *Fusarium oxysporum* SCHLECHT. M. O. Tirunarayanan and M. Sirsi, *Curr. Sci.*, 1955, **24**, 162.

Oxysporin, the antibiotic principle from *F. oxysporum*, has been shown to have the same antitubercular activity as streptomycin *in vitro*. Further studies on the chemistry and pharmacology are in progress.

FERMENTATION TECHNOLOGY LABORATORY

1. EFFECT OF CHLOROMYCETIN SUPPLEMENTATION ON THE TRANSAMINASE ACTIVITY OF THE SILK WORM *Bombyx mori* L. (Mrs.) M. B. Shyamala and J. V. Bhat, *J. Sci. & Industrial Research*, 1955, **14 C**, 97–99.

In this paper some data are presented on the effect of supplementation of chloromycetin on the transaminases in the tissues of the silk worm. Transaminase activity was studied in hæmolymph and in the tissue extracts of silk glands and intestines. Circular paper chromatographic technique was adopted for enzyme studies. By employing the same technique, glutamic acid was quantitatively estimated in 20 ml. aliquots spotted at different intervals of time. The results show the intestinal extracts from the control batch of worms exhibiting high transaminase activity as compared to the hæmolymph which showed little activity. In the chloromycetin fed silk worms, on the other hand, the transaminase activity is even more high in the intestines and the hæmolymph, whereas the silk glands show little increase in activity. The increased transaminase activity in the hæmolymph of the chloromycetin fed silk worms is very significant and it has been surmised from the results that the hæmolymph probably has a very important function in the metabolism of the silk worm.