

ABSTRACTS

DEPARTMENT OF BIOCHEMISTRY

1. STUDIES ON VITAMIN A ESTERASE. I. The general properties and possible specificity of the rat liver enzyme. P. Seshadri Sastry, S. Krishnamurthy and J. Ganguly, *Indian J. Med. Res.*, 1957, **45**, 263.

Blood plasma and homogenates prepared in 0.25 M sucrose of liver, pancreas, small intestine, spleen and kidneys were tested for vitamin A esterase activity against vitamin A acetate, stearate, palmitate and oleate. Liver was highly active against the acetate only while the other tissues were active towards all the esters and blood plasma had slight activity against the acetate only. The liver vitamin A esterase showed two optima at pH 6.6 and 8.6 with the maximum activity at pH 8.6 and had a substrate optimum at $6 \times 10^{-4}M$. By qualitative comparison using vitamin A acetate and ethyl butyrate as substrates it is demonstrated that the vitamin A esterase activity of rat liver is more easily deactivated by heat, aging or acetone treatment, as compared to the esterase activity. Various metallic ions, alkaloids and arsenicals preferentially inhibited the vitamin A esterase activity. It was thus suggested that the two activities are not identical.

2. STUDIES ON VITAMIN A ESTERASE. II. The hydrolysis of natural vitamin A ester within the living animal. S. Krishnamurthy, P. Seshadri Sastry and J. Ganguly. *Indian J. Med. Res.*, 1957, **45**, 391.

Homogenates prepared from livers of normal stock rats were incubated alone, with blood plasma, or with a preparation of pancreas; neither blood nor liver was able to hydrolyse the liver vitamin A ester while pancreas was able to do it readily. The presence of small amounts of vitamin A ester in normal circulating blood was conclusively demonstrated. Neither blood nor liver was able to hydrolyse the blood ester but tissues like pancreas, small intestine, spleen and kidneys readily hydrolysed it. It is, therefore, suggested that vitamin A ester of normal circulating blood comes from the liver to be hydrolysed by tissues other than blood and liver and thus maintains the vitamin A alcohol levels of tissues.

3. SOME RECENT DEVELOPMENTS IN THE NUTRITIONAL IMPORTANCE OF FATS. J. Ganguly, *Indian Oilseeds J.*, 1957, **1**, 82-84.

Some recent developments in the relationship between cholesterol and essential fatty acid metabolism in arteriosclerosis are critically reviewed.

DEPARTMENT OF METALLURGY

COLLECTING STRENGTH OF UNSATURATED FATTY ACIDS IN MINERAL FLOTATION
N. R. Srinivasan, V. Ramachandran, and R. K. Ramamurthy. *Indian Mining Journal*, 1957, Special Issue, 331-332.

Though in the flotation of silicate minerals, the use of palmitic, stearic and oleic acids is known, any detailed study on the role of unsaturated fatty acids in mineral flotation has not been made. Therefore, a comprehensive programme of work has been undertaken to study the collecting strength of oleic, linoleic, linolenic and other fatty acids in the flotation of oxide, silicate and other minerals and also to assess the suitability of the use of Indian vegetable oils in mineral flotation. A comparison of the performance of oleic and linoleic acids under identical conditions of concentration, pH and temperature, through contact angle studies with calcite, has revealed that equilibrium is attained quicker in the case of the latter, the difference being pronounced at higher pH values. A theoretical interpretation is offered on collector behaviour with respect to adsorption and chemical constitution with particular reference to unsaturation in the molecule.