

10^{-8} , there was a progressive diminution in the response of the muscle to the electrical stimuli (Fig. 1). As it has been shown that the skeletal muscle contraction induced by acetylcholine is not influenced by the drug, it would appear that the site of action of anti-amoebin is likely to be at the neuromuscular junction. Thus it is possible that the drug may produce a sensation of weakness, otherwise it is pharmacologically inert and as such not likely to produce side effects.

The studies were carried out during the tenure of a junior I.C.M.R. fellowship to one of us (M.D.). The samples of anti-amoebin were received from Hindustan Antibiotics, Ltd., Pimpri, through the kind courtesy of Director-General of Indian Council of Medical Research, New Delhi.

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A MODIFICATION OF KING AND ARMSTRONG'S METHOD OF ESTIMATION OF SERUM PHOSPHATASES

ESTIMATIONS of serum alkaline and acid phosphatases are of great diagnostic importance in clinical enzymology and, as such, are very common tests done in hospital laboratories. Both the enzymes can hydrolyse, at its own pH optimum, ester phosphates with the liberation of an alcohol and inorganic phosphate. Because of the difference in their pH optima, the one which is most active in the pH range 8-10 has been designated as alkaline phosphatase, while the other with its maximum activity at pH 5 is known acid phosphatase.

King and Armstrong¹ introduced a method for the estimation of these phosphatases in serum and tissue extracts. Phenylphosphate, which is employed as the substrate in this method, is hydrolysed by the enzyme and the amount of phenol liberated under standard conditions measures the amount of the enzyme present. Later, several substituted phenylphosphates^{2,3} have been employed in order to simplify the method. As these chemicals, e.g., p-nitrophenylphosphate, phenolphthalein phosphate, etc., are not easily available, the phenylphosphate method of King and Armstrong still continues to be the most commonly employed method in this country.

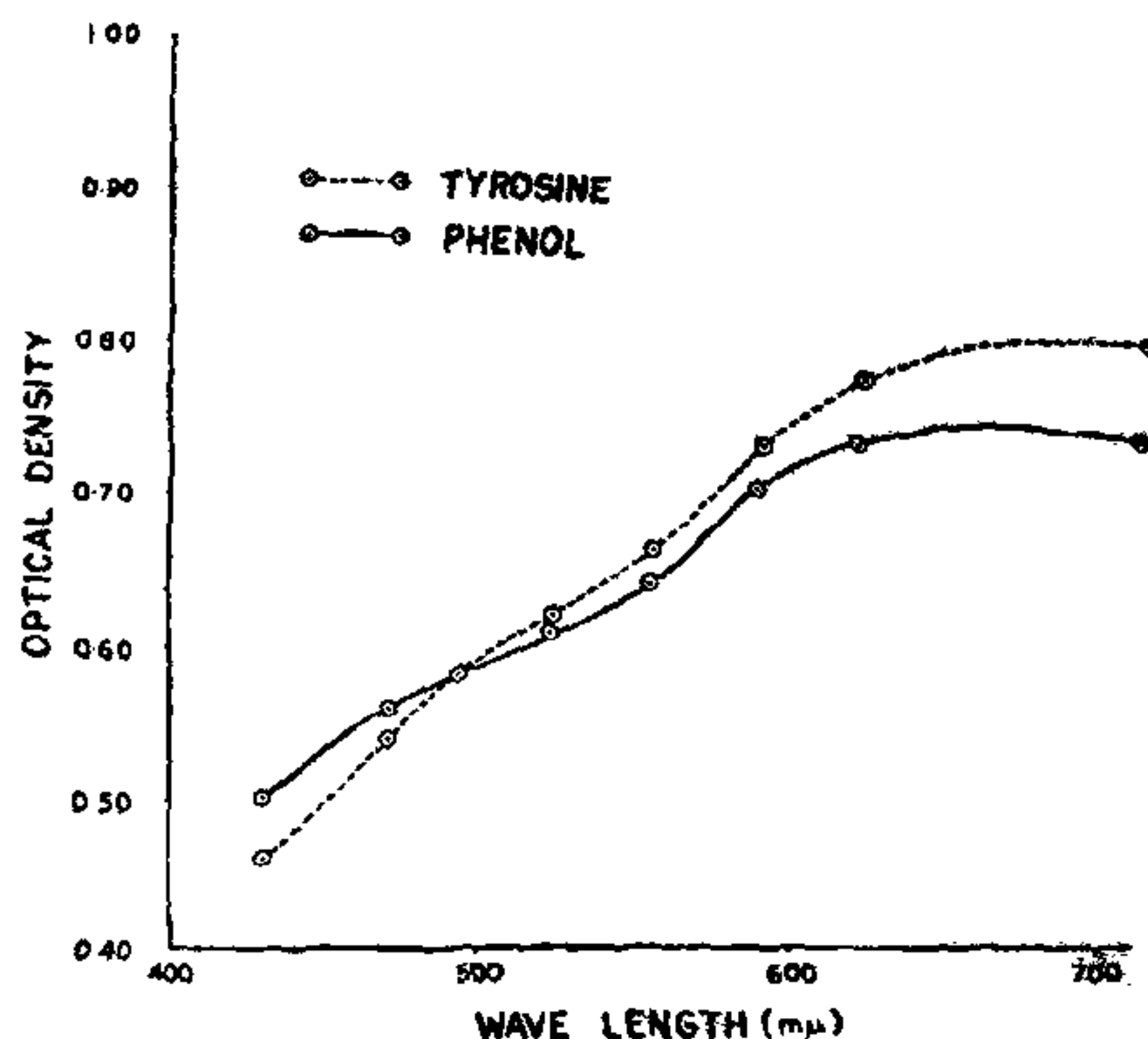


FIG. 1. Absorption spectra of the coloured solutions obtained with phenol and tyrosine standards.

One handicap of this method for routine work is that a standard solution of phenol cannot be prepared by directly weighing the required amount of phenol and dissolving it. Owing to the deliquescent nature of phenol and its susceptibility to oxidation on exposure to air and light, the strength of the solution has to be checked by iodine titration. To circumvent this difficulty, the possibility of using a standard solution of tyrosine instead of a standard solution of phenol was investigated in this laboratory. The reason for the selection of tyrosine for trial as a possible substitute of phenol in this test was based on the consideration that this compound has in its molecule a phenolic radical and like phenol it is known to produce a blue colour by reacting with Folin-Ciocalteu reagent.⁴

A stock solution of tyrosine, equivalent to 1 mg. of phenol/ml. calculated on the basis of the presence of one phenol radical per molecule of tyrosine, was prepared by dissolving 192.6 mg.

$$\left(\frac{\text{mol. wt. of tyrosine}}{\text{mol. wt. of phenol}} \times 100 \right)$$

in 0.1 N HCl and making up the volume to 100 ml. A stock solution of phenol, 1 mg./ml. in 0.1 N HCl, was also prepared and its exact strength was determined by titration. Working standard solution of each, 0.01 mg./ml. as phenol, was then prepared by the appropriate dilution of the stock.⁵ Optical density readings at different wavelengths of the colours produced by the reaction of the two solutions with Folin-Ciocalteu reagent were found to be almost identical. This showed that in King-Armstrong's

method of estimation of the phosphatases, phenol standard may be very advantageously substituted by a tyrosine standard of equivalent concentration.

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OCCURRENCE OF CHLORITOID IN SHEENY PHYLLONITE FROM CHAIL AREA, SIMLA HILLS (INDIA)

THE authors record the occurrence of chloritoid in 'Sheeny Phyllonite' for the first time from the Chail area (30° 57' 30"—33° 55' 0" N. Lat. and 77° 10'—77° 15' E. Long.), Simla Hills (India).

The phyllonite occurs as Tectonic Augens, which apparently rests over the Chail Series (Pilgrim and West, 1928) and slaty formations of the area. The sheeny phyllonite occurring as tectonic caps, measuring from 50–200 metres in width and 100–500 metres in length, outcrops near Siaula, Blossom and Tikkar. Their longer axis lies in a NE-SW direction. The general strike trend of foliation of phyllonite runs parallel to the regional strike trend, WNW-ESE, but it frequently changes towards NNW-SSE.

The green, greyish-green colour, sheeny lustre and soapy touch distinguishes the rock from other formations in the area. At times green mineral (chlorite) streaks, parallel to the main lineation in the rock, are well developed. Under the microscope the rock is characterized by interbanding of leucocratic quartz-rich and mesocratic chlorite-chloritoid-rich bands. Idioblastic to subidioblastic laths of chloritoid (Fig. 1) show preferred arrangement with their longer axes parallel to the main foliation. The constituent minerals of the rock are quartz, sericite, chlorite, chloritoid, ferrimuscovite, magnetite, with clinozomite, tourmaline, hæmatite and ilmenite.

Pale bluish-green, tabular, prismatic laths of chloritoid measuring up to 2 mm. show a faint pleochroism and dusty inclusions. The mineral is characterized by high R.I. as compared with chlorites. Optically the mineral is length fast (positive) with $2V=47^\circ$, and shows nearly parallel extinction.

Its well-developed cleavage, hour-glass structure between crossed nicols, and high refractive index, easily distinguishes the mineral from chlorite and other related minerals.



FIG. 1

The authors believe that the chloritoid is a product of dislocation movement (Read, 1937; Atkinson, 1956). Such tectonic movements were active during the Himalayan Orogeny resulting in thrusting of sheeny phyllonite over the Chail and slaty formations of the area. They also support the view that chloritoid is a stress mineral and was formed in a chemically Al and Fe-rich environment, and deficient in magnesian lime and potash (Harker, 1932).

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NOTE ON THE ENERGETICS OF GROWTH IN OPHIOCEPHALUS PUNCTATUS BLOCH

IN the life of any organism food supply appears to be the most potent factor affecting growth. Much work has already been done on the food supply, growth, and energy turnover in fish. But most of the literature relate to fishes of colder regions. Ivlev (1939)¹ was the first to