9.3 mM. The ADP/O ratio (glutamate+malate) was decreased by 1 at drug concentrations above 2.5–3.0 mM. These concentrations had no effect on the ADP/O ratio with succinate as substrate.

Acyl Phosphatase of *Vigna catjang*

By V. K. RANJEKAR and V. JAGANNATHAN (*National Chemical Laboratory, Poona-8, India*)

Acyl phosphatase has been obtained in highly purified form from brain (Diederich & Grisolia, 1969), muscle (Ramponi *et al.*, 1969; Shiokawa & Noda, 1970) and erythrocytes (Rakitzis & Mills, 1969) of animal tissues, but the enzyme from plants has not been studied hitherto. Four different enzymes that hydrolyse acetyl phosphate have been shown to be present in seeds of *Vigna catjang*; only one of these is specific for acetyl phosphate and does not hydrolyse other phosphate esters. This enzyme was purified about 400-fold and obtained in electrophoretically homogeneous form. It has a sedimentation coefficient of 1.2S and resembles the enzyme from animal tissues in its low molecular weight, inhibition by P_i and stability at low pH. However, it differs from the animal enzyme in being inhibited irreversibly by *p*-chloromercuribenzoate and Hg^{2+} and reversibly by bisulphite. It is inactive towards carbamoyl phosphate. It has no metal ion requirement and is stable towards di-isopropyl phosphorofluoridate. Its properties and kinetics, its variation in plant tissues under different conditions and its possible metabolic role will be discussed.

Diederich, D. A. & Grisolia, S. (1969) *J. Biol. Chem.* **244**, 2412

Rakitzis, E. T. & Mills, G. C. (1969) *Arch. Biochem. Biophys.* **134**, 372

Ramponi, G., Guerritore, A., Treves, C., Nassi, P. & Baccari, V. (1969) *Arch. Biochem. Biophys.* **130**, 362

Shiokawa, H. & Noda, L. (1970) *J. Biol. Chem.* **245**, 669

Studies on Phosphatases of the Mosquito *Culex pipiens fatigans*

By M. B. LAKSHMI and D. SUBRAHMANYAM (*Department of Biochemistry, Postgraduate Institute of Medical Education and Research, Chandigarh, India*)

The alkaline phosphatases of the mosquito *Culex pipiens fatigans* were separated into two molecular species by chromatography on DEAE-Sephadex and their properties were studied. Zn^{2+} is essential for activity.

The insects also contain different acid phosphatases having pH optima 3.4 and 4.8 respectively with β -

glycerophosphate and with *p*-nitrophenyl phosphate as substrate. The enzyme with pH optimum 4.8 is also active on 5'-nucleotides.

The alkaline phosphatase of the insects readily hydrolyses the lipid phosphate esters, whereas the acid phosphatase is inactive. The distribution of the phosphatases in subcellular fractions and in different developmental stages of the insects and their characterization will be discussed.

Purification and Properties of Arylsulphatase A from Chicken Brain

By A. A. FAROOQUI and B. K. BACHHAWAT (*Neurochemistry Laboratory, Department of Neurological Sciences, Christian Medical College and Hospital, Vellore-4, India*)

Lysosomal arylsulphatases A and B are widespread in their distribution and have been found in all animal species studied, but very little is known about the role of these hydrolases in animal tissue. A significant decrease in arylsulphatase A activity in the genetic disorder metachromatic leucodystrophy, which is characterized by abnormal accumulation of sulphatides, has been observed in our laboratory (Austin *et al.*, 1963). Mehl & Jatzkewitz (1968) have reported that arylsulphatase A from pig kidney, in the presence of a heat-stable polymer, can degrade cerebroside 3-sulphate.

Previous work from this laboratory has indicated the differences in the proportions and physico-chemical properties of brain arylsulphatases in various animal species (Farooqui & Bachhawat, 1971). Chicken brain arylsulphatase in some respects resembles arylsulphatase A of other animal species in its kinetic properties such as K_m value, anomalous time-activity relationship and inhibitory effects of phosphate and sulphite ions. On the other hand its electrophoretic mobility and behaviour during zinc acetate fractionation are similar to those of arylsulphatase B of other species. Because of these properties, we undertook the purification of this enzyme from chicken brain. The enzyme was purified 2000-fold by using ammonium sulphate fractionation, ethanol precipitation, Sephadex-gel filtration and DEAE-Sephadex column chromatography. The purified enzyme is markedly inhibited by multivalent anions such as sulphite, phosphate and sulphate; the lowest degree of inhibition was given by sulphate. Univalent anions such as chloride have no effect, whereas fluoride ions markedly inhibit the enzyme activity. Like ox liver arylsulphatase A (Roy, 1970), this enzyme is inhibited by certain carbonyl reagents and ascorbic acid in the presence of metal ions. Cu^{2+} seems to be the ion