

**PURIFICATION AND CHARACTERIZATION OF AN
ACID PHOSPHATASE FROM *Arachis hypogaea***

By
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Thesis Submitted
in fulfilment for the requirements
of the degree of
DOCTOR OF PHILOSOPHY



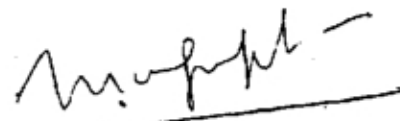
**DEPARTMENT OF CHEMISTRY
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*Dedicated
to
My Parents*

CERTIFICATE

This is to certify that the thesis entitled,
"PURIFICATION AND CHARACTERIZATION OF AN ACID PHOSPHATASE
FROM Arachis hypogaea" being submitted by Mr. Rishi Srivastava
to the Indian Institute of Technology Delhi for the award
of the degree of Doctor of Philosophy, is a record of
bona fide research work carried out by him. Mr. Rishi Srivastava
has worked under my guidance and supervision and has fulfilled
the requirements for the submission of this thesis which,
to my knowledge, has reached the requisite standard.

The results contained in this thesis have not been
submitted, in part or in full, to any University or Institute
for the award of any degree or diploma.



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ABSTRACT

The thesis has been divided into five Chapters.

Chapter I consists of literature survey of acid phosphatase in general with emphasis on plant acid phosphatases. A brief review of their biochemical and biomedical importance has also been given.

Chapter II describes the attempts at purification of acid phosphatase activity from Arachis hypogaea. It has many isoenzymes. One of the isoenzymes has been purified to the extent that it gives single band on PAGE. Attempts were made to use Con A-agarose column in a novel way, for which the exploratory work was done with commercially available wheat germ acid phosphatase. The results obtained have also been included in this Chapter, though the remaining thesis deals with peanut acid phosphatase.

Chapter III reports the routine data like K_m , optimum temperature, pH optimum, thermal stability, pH stability and substrate specificities. The enzyme was crosslinked with dimethyl suberimidate and its thermal stability was examined. Molecular weight by Gel filtration has also been given in this Chapter.

Chapter IV reports about the interaction with metal ions and anions. Reaction of enzyme with PCMB,

Idoacetate and its surface denaturation data in the presence and absence of Triton X-100 has also been included.

Chapter V describes the results on immobilization of acid phosphatase activity of peanut on CM-cellulose and on hydrous Tin(II) oxide.

The list of references mentioned in the thesis has been given in the end.

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