

A REVIEW OF PROTEASE INHIBITORS FROM DIFFERENT SOURCES

K. VIJAYA RACHEL¹ & GANDREDDI V D SIRISHA²

¹Assistant Professor, Department of Biochemistry, Institute of Science, GITAM University, Rushikonda,
Visakhapatnam, Andhra Pradesh, India

²Research Scholar, Department of Biochemistry, Institute of Science, GITAM University, Rushikonda,
Visakhapatnam, Andhra Pradesh, India

ABSTRACT

Protease inhibitors (PIs) are widely distributed in all living forms such as microorganisms, plants and animals. Protease inhibitors are involved in regulation of enzyme activity deregulation of which leads to diseases. Protease inhibitors are of many types which are categorized based on the specificity, amino-acid sequences, localization of the reactive sites, disulfide bridge topology, mechanism of action and three-dimensional structure. The different types of Protease inhibitors include aspartate protease inhibitors, serine protease inhibitors, cysteine protease inhibitors and metallo carboxypeptidase protease inhibitors. Protease inhibitors find application in different areas like medicine, agriculture and biotechnology. Specific protease inhibitors are effective tools for inactivating the target proteases which are involved in pathogenic process of human diseases like arthritis, pancreatitis, hepatitis, cancer, AIDS, thrombosis, emphysema, high blood pressure, muscular dystrophy etc. Protease inhibitors are one of the prime molecules with highly proven inhibitory activity against insects, pests and are used as bioinsecticides by developing transgenic plants. A brief review of isolation, identification, characterization and applications of various Protease inhibitors is carried out.

KEYWORDS: Protease Inhibitors, Classification, Target Proteases, Effective Tools, Review