

## THE IMPORTANCE OF MICROBES IN AMIDASE PRODUCING.

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**Abstract:** *the enzyme amidase, the foreign scientists who investigated it, and the kinds of bacteria that produce it are all covered in the article.*

**Keywords:** *enzyme, bacteria, amidase, purification, properties, substrate specificity, producer.*

In the biosphere, enzymes play a vital role in the survival of microorganisms, plants, and animals. A wide range of enzymes provide a rapid course in the body or outside of its enormous number of chemical reactions because of their catalytic function. Amidase is one of the least investigated enzymes. The enzymes known as Amidases (EC 3.5.1.4) break down amide bonds and have been extensively studied during the past 20 years. They can be found in all kingdoms of the living world and catalyze the hydrolysis of amides to carboxylates and ammonia. Proteins isolated from various sources are distinguished by their varying substrate selectivity. Some break down aromatic acid compounds, others hydrolyze amino acid compounds, while some catalyze the hydrolysis of aliphatic acid compounds. Certain amidases are stereoselective.

The study of amidases and their producers is relevant because of their significant heterogeneity in structure, properties, genetic organization and regulation of activity, integration with other metabolic processes, wide substrate specificity, and stereoselectivity of some of them. The appearance of amidase activity in bacteria is frequently linked to nitrile metabolism. High amidase activity bacteria are of interest for the biocatalytic production of various carboxylic acids, specifically ammonium salts of nicotinic and acrylic acids, non-steroidal anti-inflammatory medications. Most currently known amidases have been discovered and described in bacteria. This applies to many genera: *Rhodococcus*, *Corynebacterium*, *Mycobacterium*, *Pseudomonas*, *Bacillus*, *Micrococcus*, *Brevibacterium*, *Nocardia*, *Streptomyces*, *Blastobacter*, *Arthrobacter*, *Alcaligenes*, *Helicobacter*, *Lactobacillus* and *Methyloph*.

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Among the bacterial enzymes, amidases from *Brevibacterium sp. R312*, *Rhodococcus rhodochrous J1* and *Pseudomonas aeruginosa* are the most studied enzymes of this type. Native enzymes consist of several identical subunits and, obviously, belong to the class of sulfhydryl enzymes. They exhibit two types of activity - amidohydrolase (1) and amidotransferase (2).

In the strain *R. rhodochrous* M8, which serves as a biocatalyst in the industrial production of acrylamide, amidase *R. rhodochrous* is involved in the metabolism of nitrile. This microbe was separated from the soil. Because of the conjugated action of nitrile hydratase (EC 4.2.1.84), which converts nitriles to the corrosive amides and amidase, which hydrolyzes amides, to free acids, it generates nitrile. The specific organization and characteristics of the amidase are yet unknown, in contrast to the well-researched nitrile hydrolase from this strain. As a biocatalyst in the industrial production of acrylamide, the enzyme *R. rhodochrous* is involved in the metabolism of nitrile in the strain *R. rhodochrous* M8. This microbe was separated from the soil. Because of the conjugated action of nitrile hydratase (EC 4.2.1.84), which converts nitriles to the corrosive amides and amidase, which hydrolyzes amides, to free acids, it generates nitrile. The specific organization and characteristics of the amidase are yet unknown, in contrast to the well-researched nitrile hydrolase from this strain.

Not a single strain of the amidase enzyme, its producer, or its microorganisms was isolated in Uzbekistan, and systematic scientific investigations pertaining to their study were not carried out. Not even the literature on microbiology and biology provides any information on the amidase enzyme and its characteristics. We set out to advance the development of biology and microbiology in our country by examining the distinctions between local bacteria with amidase activity and those mentioned in foreign literature, as well as their unique characteristics.

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