Scientist following years after his crystallization, other scientists

Science

Scientist John Northrop crystallizedmany enzymes and proteins in the early twentieth century. Among them waschymotrypsin, a digestive enzyme.

In the following years after hiscrystallization, other scientists contributed to the characterization of thisenzyme, and now, it is one of the most well understood proteases. Chymotrypsin, as previouslymentioned, is a digestive enzyme produced by the pancreas. Without it, properfood digestion cannot occur, as it is responsible for the break down ofproteins.

Structurally, chymotrypsin consists of two chains, and is made up of245 amino acids (Figure 1). The catalytic triad is animportant component of chymotrypsin. This triad consists of residues Serine195, Histidine 57, and Aspartate 102 (Figure 2). Together, they work tostabilize the enzyme and promote catalysis.

The aspartate and histidine arebound to each other by hydrogen bonds, allowing histidine to work as a base forserine. Serine can then become a nucleophile to catalyze the breakdown ofproteins.