عنوان مقاله:

Design and construction of intra-chain disulfide urate oxidase in Aspergillus flavus

محل انتشار:

بیستمین کنگره ملی و هشتمین کنگره بین‌المللی زیست‌شناسی ایران (سال: 1397)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Ramin Soleimani - *Departamn Biochemistry Faculty of Veterinary University of Urmia*

Mehdi Imani - *Departamn Biochemistry Faculty of Veterinary University of Urmia*

خلاصه مقاله:

The urate oxidase catalyzes the transformation of uric acid (low solubility) into 5 hydroxyiso-urea and ultimately alanthine (solution).The accumulation of uric acid in theblood is prone to acute or chronic kidney disease with gout and kidney disease. Uricase Aspergillus felucus enzymes have been used as a therapeutic enzyme, including reduction of urate, and in the Clinical treatment of gout disorders, nephropathy and hyperuricemia due to lymphatic drainage syndrome (TLS). In spite of having a high tendency and high potential in substrate conversion to the product, its low stability In the face of heat, its use is limited. There are several solutions to this challenge, including protein engineering and genetic manipulation. It has been shown that the di sulfide bond plays an important role in the stability of proteins by decreasing entropy of unfolded stateThe enzymes of uricase Aspergillus flavus have three cysteines in their normal state, but none have the ability to form a disulfide bond.Therefore, in this study, in order to increase the stability of the uricase enzymes of Aspergillus flavus and to create a mutated enzyme with new featuresone sites were modeled with thehelp of MODIP server to create one new mutated enzymes. The goal of this study is to locate the enzyme to produce a disulfide bond. In this study, with the help of the MODIP server, the place was chosen to be changed to the captured Cys amino acid. Then, it was designed with the aid of the Gene runner mutated primer software and was targeted by the SOEing-PCR method of mutagenesis.The bioinformatics studies showed that with the point mutation of Ser145 and Thr185 to Cys, there was a possibility of the formation of a di-sulfide bond. The results show that with the help of the MODIP server, it is possible to find the right place to create a disulfide bond. The findings from mutagenicity suggest that SOEing-PCR can successfully mutate

کلمات کلیدی:

Urate oxidase, Disulfide bond, Mutagenesis, SOEing-PCR, Aspergillus flavus