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The Stability Increase of α-Amylase Enzyme from *Aspergillus fumigatus* Using Dimetyladipimidate

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This study aims to increase the stability of the α-amylase enzyme from *Aspergillus fumigatus* using dimethyladipimidate (DMA). The research stages carried out included production, isolation, purification, modification and characterization of native enzyme and after the addition of DMA. The enzyme activity was determined by the Fuwa and Mandels method, while the protein content was determined by the Lowry method. The results showed that the native enzyme has a specific activity of 7010.42 U/mg, an increase of 7.8 times compared to the crude extract of the enzyme which has a specific activity of 904.38 U/mg. The native enzyme has an optimum pH of 5 and an optimum temperature at 55 ºC. The native enzyme has a residual activity of 17.17% after incubation for 60 minutes at 55 ºC, and a half-life of 25.86 min. Enzymes after addition of DMA with a concentration of 0.5, 1 and 1.5% has an optimum pH of 5.5 and an optimum temperature of 65 ºC. After incubation for 60 minutes at 65 ºC, these modified enzymes have residual activity of 54.17, 46.18 and 34.44%, half-lives of 85.55, 58.25 and 37.46 minutes, respectively. The addition of DMA to the native α-amylase obtained from *A. fumigatus* was able to increase the stability of the modified enzymes between 1.5 and 3.3 times compared to the native enzyme as indicated by the increase in their half-lives.