

# **The mucilage of yam (*Dioscorea batatas* Decne) tuber exhibited angiotensin converting enzyme inhibitory activities**

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## **Abstract**

The tuber mucilage of yam (*Dioscorea batatas* Decne) (YTM) was extracted and purified to homogeneity, which was confirmed by the toluidine blue staining on a sodium dodecylsulfate-polyacrylamide gel electrophoresis gel treated with 2-mercaptoethanol appearing as a single band with molecular mass larger than 250 kDa. This purified YTM was shown by spectrophotometric method to inhibit angiotensin converting enzyme (ACE) in a dose-dependent manner (28.7 to 59.8% ACE inhibition, respectively, by 102.46 to 409.84  $\mu\text{g/mL}$  YTM) using (N-(3-[2-furyl]acryloyl)-P he-Gly-Gly) (FAPGG) as a substrate. The concentration of YTM required for 50% inhibition ( $\text{IC}_{50}$ ) of ACE activity was 256.2  $\mu\text{g/mL}$  while that of captopril was 0.00781  $\mu\text{M}$  (0.0095 nmole). The commercial polysaccharide pectin (102.46 to 307.38  $\mu\text{g/mL}$ ) showed no inhibitory activity against ACE. Using fluorescent silica TLC or C18 reverse phase HPLC to detect FAPGG and FAP, the results also showed that YTM inhibited ACE. The YTM showed mixed type inhibition against ACE, and the Michaelis constant in the presence of YTM was 0.33 mM. Consumption of yam tubers may benefit people's health.