TITLE:

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ABSTRACT

The effects of different solvents on the yield of secondary metabolites of the unfractionated and fractionated extracts of the Annona muricata L. were investigated by simplex centroid design mixtures of ethanol, ethyl acetate, dichloromethane, acetone and chloroform. The effect of the composition of mobile phase on the chromatographic separation of the extracts of the organic and basic fractions also was investigated. The number of peaks was used to evaluate the extraction efficiency. A mixture of acetonitrile:methanol:water (26:27:47% v/v/v) was chosen as the mobile phase. The largest unfractionated yield was obtained using a ternary mixture of ethanol, dichloromethane and chloroform (1/3:1/3:1/3 v/v/v). The lowest yield of the neutral fraction occurs for the pure ethanol solvent. The largest yields of the organic fraction were obtained for the pure ethanol solvent and ternary mixture of ethanol, dichloromethane and acetone (1/3:1/3:1/3 v/v/v). Ethanol:ethyl acetate:acetone:chloroform (1/4,1/4,1/4,1/4v/v/v/v) and ethanol: ethyl acetate dichloromethane:chloroform (1/4,1/4,1/4,1/4v/v/v/v) and the five component mixtures were more efficient at extracting the basic fractions. The largest yield of the fiber fraction was obtained for the binary mixture of ethyl acetate: dichloromethane (1/2:1/2 v/v). Principal component analysis and hierarquical cluster analysis models were applied to chromatograms and middle infrared (FTIR) spectral data of different extracts to discriminate the chemical compositions as mixture composition changes.