

Selected natural deep eutectic solvents for the extraction of γ -mangostin from mangosteen (*Garcinia mangostana* L.) pericarp

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Abstrak

This research considers the application of Natural Deep Eutectic Solvents (NADES) as green solvents for the extraction of bioactive compounds, mainly γ -mangostin, from the pericarp of mangosteen (*Garcinia mangostana* L.). Extractions were carried out using NADES consisting of choline chloride, a quaternary ammonium salt, and four hydrogen bond donors: 1,2-propanediol, citric acid, glycerol, and glucose. The highest γ -mangostin extraction yield of 2.6 % (w/w) in dried pericarp was obtained using a mixture of choline chloride and 1,2-propanediol in 1:3 mole ratio. The presence of hydrogen bonding was indicated by the broadening of the OH peak in the infra-red spectra of the NADES used. The polarity and viscosity data of NADES were determined to describe the solubility of α -mangostin. The decomposition and glass transition temperatures were determined in order to study their thermal behavior and stability. The results of this study suggest that NADES made of choline chloride and diol-based hydrogen bond donors are effective for the extraction of bioactive compounds from the mangosteen pericarp.