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Extraction and purification of antifungal compounds from Piper betle (Article)

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Abstract

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Piper betle also known as 'sireh' has been traditionally used for medicinal purposes. It has been reported that P. betle leaves possess antifungal activity but no effort to optimize the extraction conditions to obtain high yield of antifungal compounds has been carried out yet. In this study, optimized extraction condition was determined. It was first conducted by screening parameters that significantly affect the extraction using fractional Factorial Analysis. This is followed by identifying the levels for those parameters by employing under Response Surface Method (RSM) FFA. Linear effects of temperature and solvent to solvent ratio as well as interactive terms between temperature and incubation time, and between temperature and solvent to solvent ratio were found to significantly ($p<0.05$) affect the extraction. Temperature and incubation time were selected for optimization experiment and the best condition obtained was extraction for 15 hours at 50°C. In the present study, purification of the extracted antifungal compounds was also carried out. Using column chromatography, the resulting fractions from elution with mixture of hexane and ethyl acetate at ratio 8:2 successfully purified the antifungal compounds. Thin layer chromatography (TLC) showed two distinct spots at Rf value 0.82 and 0.86. Identity of the two spots will be carried out in future research.

Author keywords

Column chromatography Extraction Fractional factorial analysis Piper betle Response surface method (RSM)

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