

Abstract

Research Title : STUDY OF THE SOLUBILITY OF EXPANDED POLYSTYRENE
USING SOLVENT EXTRACTED FROM *Citrus* PEELS

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d-limonene is an important compound in volatile oil extracted from *Citrus* peel and a good solvent for expanded polystyrene (EPS). Mandarin orange (*Citrus reticulata* Blanco) is typically found in Thailand and its peel is a common waste from juice industry. In this study, determination of limonene in the volatile oil extracted from the peel of Mandarin orange (*Citrus reticulata* Blanco) comparing with that of lime (*Citrus aurantifolia* Swing) leech lime (*Citrus hystrix* DC.) and pummelo (*Citrus maxima* Merr) was performed. Two extraction methods were used; steam distillation and solvent extraction using hexane. The highest level of extracted volatile oil was found from the peel of the leech lime (2.98 % yield). Moreover, steam distillation method provided more volatile oil than solvent extraction method. The extracted volatile oils were then analyzed for limonene by using GC. The highest amount of limonene was found in the volatile oil extracted from the Mandarin orange peel (95%). 100 g of oil extracted from Mandarin orange can dissolve 29.5 g of EPS, which is less than toluene (46.2 g/solvent 100g) but more than dichloromethane and acetone.