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KEY WORD: TANNIN/EXTRACTION/RAMBUATAN PEEL

SUWARONG WONGSIRI: EXTRACTION OF TANNIN FROM RAMBUATAN PEEL. THESIS
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The experimental studies of tannin extraction from rambutan peel were divided into 3 main parts. The first part was the batch extraction without mixing. The extraction units were 250 ml. Erlenmeyer flasks. It was found that the optimum size of rambutan peel was 1-2 mm.. For the temperature 30-70°C, 50% ethanol, 1% and 3% Na₂SO₃ should be used. When the extraction temperature raised up to 90°C, pure water should be used. The optimum ratio of rambutan peel to solvent was about 1:10. The optimum extraction time was 9 and 3 hours at 70°C and 90°C, respectively. The second study was to determine the tannin equilibrium curve and the diffusion coefficients (k'A/b) at different temperatures by using a mixing vessel. It was found that the term of k'A/b was linear function of the extraction temperature (K)

$$k'A/b = 0.192 T - 56.09 \quad \text{for pure water and}$$

$$k'A/b = 0.203 T - 59.87 \quad \text{for 50% ethanol}$$

under the studied conditions : size = 1-2 mm., the ratio of rambutan peel to solvent = 1:10, temperature = 30°-70°C and mixing speed of the magnetic stirrer = 500 rpm.

The third study was the semi - continuous counter current extraction. Six units of 3 litres stainless steel cylinders were used. Each extractor cylinder had a porous cylinder filled up with rambutan peel inside. These six units were partially immersed in the water bath. It was revealed that for the extraction time of 1/2 hours, the 3% Na₂SO₃ solvent yielded a better efficiency than using 1% Na₂SO₃, 50% ethanol and pure water at 70°C. Therefore, Na₂SO₃ addition is appropriate and does not cause any harm in using since Na₂SO₃ is a common chemical used in tanning industry. It is concluded that the semi-continuous counter-current extraction system could improve significantly the tannin extraction efficiency in comparison with the batch with mixing system. Meanwhile, the batch without mixing system had the lowest extraction efficiency.