

Extraction of Oil from Waste Date Seed Using Soxhlet Extraction Apparatus

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Abstract: Soxhlet extraction is the most common technique for oil seed extraction. Date seed oil is obtained from date seed through Soxhlet extraction technique. Three factors affect the performance of extraction of date seed oil particle size, type of solvent and time of extraction. The % yield and % recovery of date seed oil using methanol as a solvent. % Yield for different feed to solvent ration are 9.6, 10.4, 11.6, 12 and 12.4 for 1:2, 1:3, 1:4, 1:5 and 1:6 resp. % recovery for different feed to solvent ration are 83.8, 80.89.2, 92.3 and 95.3 for 1:2, 1:3, 1:4, 1:5 and 1:6 resp. As per observation methanol is the best suitable for extraction of date seed oil from the date seed and 1:4 will be the optimum feed to solvent ratio in which up to 90 % recovery of oil from date seed. The optimum value for feed to solvent is 1:4 on which maximum yield for date seed oil extraction. As the feed to solvent ration increase more than 1:4 there is appreciable change in the yield but the cost of solvent increase. The 1:4 feed to solvent ration is to be optimum value for date seed oil extraction. According to various literatures Soxhlet extraction process best technique for extraction of solute having low solubility in solvent. In Soxhlet extraction based on the boiling point of solvent and again & again extraction take place in this method. Date seed oil is one of the most components of the date seed contain 5–13 % of date seed. The extraction of date seed oil carried out 2-3 hrs. The optimum time for extraction is 2.5-3 hrs. for extraction of oil from date seed. As per observation methanol is the best suitable for extraction of date seed oil from the date seed. Methanol can easily separate after extraction and has higher yield than other with low cost. Maximum % yield and % recovery for solvent Methanol shows the 12.2 % and 95 % resp. Extraction carried out at boiling temperature of solvent should be better for rate and yield of extraction. Temperature for extraction with methanol as solvent at 60-65°C.

Keywords: Soxhlet Extraction, Date Seed Oil, Methanol, Solvent Extraction Process.

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