

UNIVERSITI TEKNOLOGI MARA

**THE SCREENING OF ALKALOIDS FROM THE
ETHYL ACETATE EXTRACT OF *PAPAVER*
SEEDS**

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ABSTRACT

Alkaloids are distinguished into three categories; true alkaloids, protoalkaloids and pseudoalkaloids. In most alkaloids, the backbones are benzyloisoquinoline alkaloids. There are 25 types of alkaloids in opium and the major content is morphine which is half of the content of the opium. Opium poppy or *Papaver somniferum* belongs to a family of Papaveraceae. It is an annual herb with a characteristic of tall, sometimes slightly hairy branched stem. *Papaver somniferum* was selected for this study due to the occurrence of opiates in the poppy seeds. This study was performed to detect whether the samples are opiumless or alkaloid-free non narcotic opium poppy seeds. Several methods were used in order to accomplish the objective. The initial step was detecting alkaloids in the poppy seeds using spraying reagents such as Mayer, Dragendorff and Bouchardat reagents. Changes of colours and precipitations were the result of the detection. Next was to extract the poppy seeds by crushing the poppy seeds into powder and soaking with hexane solution. It was filtered and evaporated for 3 times to obtain the concentrated extract. Finally, the solution was tested using thin layer chromatography (TLC). An orange-yellow zone on the TLC plate indicated a positive result of the presence of alkaloids. During the experiment, it showed that hexane solution might not extract the poppy seeds and therefore, hexane solution has been changed with ethyl acetate solution. The color of both sample 1 and sample 2 poppy seeds changed from bluish to slightly yellowish during extraction. In the detection method, precipitation has been detected for all of the reagents. Bouchardat reagent has shown the most obvious result, that is dark orange precipitate. There were some difficulties during the TLC as the compound does not separate. TLC plates of the ethyl acetate extract in hexane 70% and ethyl acetate 30% have shown the separations under the UV light. Unfortunately, no alkaloids could be detected once the plate was sprayed with Dragendorff reagent. Another method has been made by using High Performance Thin Layer Chromatography (HPTLC) and anisaldehyde reagent. The HPTLC plate was sprayed with anisaldehyde reagent and heated at 105 °C until the bands were developed. The best bands from the ethyl acetate crude extract were observed in toluene: ethyl acetate (70%:30%) and the retention factor (R_f) was 0.66. In conclusion, alkaloids were detected from the poppy seeds of the sample 1 and sample 2. However, these alkaloids cannot be isolated and therefore, the alkaloids could not be identified.