UNIVERSITI TEKNOLOGI MARA

DETERMINATION OF LYCOPSAMINE, SENECIONINE AND SENKIRKINE IN TROPICAL HONEY BY LCMS/MS

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Project paper submitted in partial fulfillment of the requirements for the degree of Bachelor in Environmental Health and Safety (Hons.)

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Declaration by Student

Project entitled "Determination of Lycopsamine, Senecionine and Senkirkine in Tropical Honey by LCMS/MS" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Dr. Mehdi Sameni as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

Student's Signature:

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ABSTRACT

Determination of Lycopsamine, Senecionine and Senkirkine in Tropical Honey by LCMS/MS

Aisha binti Warshaf

Objective: This study was conducted to determine the presence of Lycopsamine, Senecionine and Senkirkine in tropical honey. **Methodology:** A total of 30 samples of honey obtained from Honey Research Lab at the Faculty of Pharmacy had been analysed during this study in which 13 honey samples were acquired directly from beekeepers and 17 honey samples were retail honey. The samples were stored at 4°C prior to analysis. Samples were extracted according to the method of Solid Phase Extraction (SPE) described by Dubecke et al, (2011) with some modification. LC-ESI-MS-MS was used for simultaneous determination of Lycopsamine, Senecionine and Senkirkine in honey samples. **Result**: Good linear calibrations were obtained; Lycopsamine (R^2=0.98), Senecionine (R^2=0.99) and Senkirkine (R^2=0.98) as well as recoveries achieved for selected PAs ranging between 77.46 and 93.76. Only 10 (33%) of 30 samples were detected positive of total selected Pyrrolizidine Alkaloids (PAs). The total positive sample of Lycopsamine, Senecionine and Senkirkine were in concentrations ranged from 5.58ng/g to 78.99ng/g. The highest level of Lycopsamine, Senecionine and Senkirkine detection in honey sample were 27.60ng/g, 37.730ng/g and 35.69ng/g respectively. **Conclusion:** The results showed that 33% of total analysed honey samples were contaminated with PAs in which 5 samples were raw honey and another 5 samples were retail honey. Suggesting the tropical flowers in Malaysia, in which honey bee collects their nectar makes honey produce in this country are susceptible to Pyrrolizidine Alkaloids (PAs) contamination.

Keywords: Food afety, Honey, Pyrrolizide alkaloid (PA), Solid Phase Extraction (SPE), LC-ESI-MS-MS