UNIVERSITI TEKNOLOGI MARA

"STUDY ON LEVEL OF CAFFEINE IN DIFFERENT BRANDS OF ENERGY DRINK IN THE MARKET AND RISK ASSESSMENT"

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

Faculty of Health Sciences

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DECLARATION

Study on Level of Caffeine in Different Brands of Energy Drink in the Market and Risk Assessment is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due discussions. The project was done under the guidance of Mr Ahmad Razali bin Ishak as Project Supervisor and Miss Farah AyunibintiSahafea @ Shafie as Co-supervisor. It has been submitted to the Faculty of health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons.)

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Abstract

STUDY ON LEVEL OF CAFFEINE IN DIFFERENT BRANDS OF ENERGY DRINK IN THE MARKET AND RISK ASSESSMENT

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Introduction: The consumption of high caffeine content energy drinks has increased markedly in recent years. In Malaysia, one particular group of individuals who contributed to this growth is the productive age between 20 to 39 years old. Caffeine is found in varying quantities in the seeds, leaves, and fruit of some plants, where it acts as a natural pesticide that paralyzes and kills certain insects feeding on the plants (Nathanson, J. (1984)). Overdose of caffeinated energy drink may resulting acute in human health effect such as anxiety, nervousness, insomnia, gastrointestinal problems, tremors (being jittery), irregular heartbeat and others. **Objective:** Objective of this study is to compare the level of caffeine in difference brands of energy drink in the market and evaluate the risk to human health. **Methodology:** Thirty samples energy drink according to brand were taken in the market and 100 questionnaires were distributed to obtain the information on the respondents practice in consumption of energy drink. Thirty type of energy drinks were being analysed to determine the level of caffeine using High-performance liquid chromatography (or high-pressure liquid chromatography) (HPLC) equipment. Hazard Index (HI) also was determined. **Result:** There is a violation of caffeine energy drink brand Red Bull Gold Can exceedsunder Regulation 354 (3) the Food Regulation 1985, standard of 200 mg/L. Even though, analysis from the questionnaire, it is not statically significant association between drink energy drinks brand Red Bull Gold Can and any health effects on taking energy drink ($p>0.05$). HI is less than 1 means no chronic effect anticipated. **Conclusions:** The level of caffeine of Energy Drink Red Bull brand violates the Food Regulation 1985. **Recommendation:** Further study should be conduct and reviewed especially on Red Bull Energy Drink consumption so it might benefit to human and also to the industry. For the time being, adolescents, pregnant women, elderly people and people who have low body immunity should be warned on energy drink consumption and the health effect.