Cannabis in the Jamaican Community

Chair: Professor Wayne McLaughlin and Professor Jean-Pierre Louboutin

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Perception of the cannabis regulatory framework in Jamaica 2017

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Objective: In order for a country to reap the maximum economic benefits and minimize the health and social risks associated with any commodity industry, it must first establish the correct legislative framework to support the industry and its participants. This research analyses the perception of the major cannabis industry players and interest groups towards the cannabis legislative framework and the effectiveness of the Cannabis Licensing Authority (CLA) in Jamaica for the year 2017.
Methods: Data were collected from survey instruments along with semi-structured interviews and focus groups administered at the re-launch of the Ganja Growers and Producers Association of Jamaica and Scarce Commodity's Scarce Fest Jamaica 4/20 Cannabis Day, held at the Jamaica Conference Centre on April 20, 2017, as well as the 14th Annual Stepping High Festival in Negril, Jamaica, held on March 4 and 5, 2017.
Results: The results from the analysis indicated that 81% of the cannabis interest groups in Jamaica did not believe that the correct cannabis legislation had been enacted; only 19% agreed that the industry was properly legislated. Regarding the sufficiency of the CLA's ability to regulate the industry, 72% of the cannabis interest groups believed that the CLA together with the Bureau of Standards were inadequate in their approach towards regulating the Jamaican cannabis economy. Data had supported this anomaly as an alarming 85% of the cannabis interest groups failed to apply for cannabis licences from the CLA, mainly due to the high cost of the process (invoiced in foreign currency) and a genuine lack of trust and confidence in the ability of the CLA.
Conclusion: In order for the cannabis industry to move forward, any institution that decides to undertake the regulatory responsibility should be transparent and accountable in its approach and operations. The CLA will have to improve the public's perception; 46% of the cannabis interest groups lacked confidence in the capacity of the CLA to regulate the industry effectively. Of these, 62% said they were willing to receive third-party certification. Policy recommendations emanating from the research implied that the cost of a licence should be invoiced in the native currency, Jamaican Dollars, the CLA should take a more transparent approach towards licensing in the industry, and a third-party certification body would be welcomed.

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Evaluating the effects of extracts of *Petiveria alliacea L* on the activities of cytochrome P450 enzymes: assessing the potential for drug-herb interactions

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Background: The use of herbal medicines along with prescription drugs is of high prevalence in Jamaica. Drugs and herbs are metabolized by cytochrome P450 (CYP) enzymes and thus using them concomitantly may lead to drug-herb interactions.
Methods: The popular Jamaican plant *Petiveria alliacea L* (Guinea Hen weed) was tested for its inhibitory effect on the activities of the main drug metabolizing enzymes, namely, CYPs 2D6, 3A4, 1A2, 2C19 and 2C9, using heterologously expressed enzymes. The fresh whole plant (root, leaves and stem) was reaped, weighed and blended. The aqueous extract was prepared by decoction for 20 minutes and then lyophilized. The ethanolic extract was prepared by soaking in 65% ethanol for 10 days and then dried using blowing nitrogen gas. The CYP enzymes were treated with the extracts and IC_{50} values generated. Data were collected in triplicates; the mean and standard error of the mean were calculated. Each experiment was done in at least duplicate.
Results: The aqueous extract was found to be a weak inhibitor against CYP3A4 (IC_{50} 153.5 ± 25.8 µg/mL) and a moderate inhibitor against CYPs 2C19 (IC_{50} 28.5 ± 7.0 µg/mL), 2C9 (IC_{50} 58.0 ± 4.1 µg/mL) and 2D6 (IC_{50} 22.6 ± 3.4 µg/mL). No results were obtained for CYP1A2 due

to interferences with the assay. The ethanolic extract was found to be a moderate inhibitor against CYP3A4 (IC_{50} 28.7 ± 1.9 μg/mL).
Conclusion: Extracts of *P alliacea* were weak to moderate inhibitors of key CYP enzymes and therefore unlikely to demonstrate clinically relevant drug-herb interactions.

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Associations between cannabis use and multiple substance abuse among high school students in Jamaica

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Background: Cigarettes, alcohol, cannabis, inhalants and cocaine are the most commonly abused drugs among high school students in Jamaica. However, there is limited evidence on their co-use and whether the use of one drug predicts the abuse of the others (multiple substance abuse).
Objective: To determine whether cannabis use predicts the co-use of the other substances.
Methods: We analysed data from the National Secondary Schools Survey, Jamaica, 2013, using inferential statistics to determine associations.
Results: Lifetime cannabis use was significantly associated with lifetime cigarette use for males (X^2 = 282.72, p = 0.000) and females (X^2 = 434.32, p = 0.000). Similarly, it was significantly associated with: (a) lifetime alcohol use for males (X^2 = 88.62, p = 0.000) and females (X^2 = 99.48, p = 0.000); (b) lifetime inhalant use for males (X^2 = 13.28, p = 0.00) and females (X^2 = 49.56, p = 0.00); and (c) lifetime cocaine use for males (X^2 = 9.78, p = 0.00) and females (X^2 = 64.54, p = 0.00). Following the same pattern, the past month use of cigarettes, alcohol and cocaine was significantly associated with lifetime cannabis use for males and females, except for inhalant abuse among males (X^2 = 1.47, p = 0.23) and females (X^2 = 1.27, p = 0.40). The past year use of cigarettes, alcohol, inhalants and cocaine was all significantly associated with lifetime cannabis use for both males and females. Logistic regression results showed that lifetime cannabis use was a risk factor for lifetime use of cigarettes (adjusted odds ratio (AOR) = 11.38; 95% confidence interval (CI) = 9.02, 14.37) and alcohol (AOR = 5.84; 95% CI = 4.11, 8.30), but showed inconsistent results for the other associations.
Conclusion: The research indicated that lifetime cannabis use was significantly associated with multiple substance abuse and was shown to be a risk factor for cigarette and alcohol abuse.

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Cannabis-infused edibles: what to know about potency

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Background: Seen as a 'safer' way of taking cannabis, marijuana edible products are gaining popularity in Jamaica. In May 2016, the Ministry of Justice banned the sale and sampling of cannabis-infused edibles at festivals and shows after the National Council on Drug Abuse presented a growing body of evidence of serious health concerns after ganja edibles were consumed. Cannabis potency is determined mainly by the presence of the psychoactive cannabinoid delta-9 tetrahydrocannabinol (THC).
Objective: To measure the potency of cannabis edibles available in Jamaica.
Methods: Cannabis edibles were collected from festivals/shows across the island and from schools in the corporate area. Samples included candies, brownies, cookies, cakes and stewed June plum. Cannabinoids were extracted in organic solvent and the extracts analysed by Gas Chromatography with Mass spectrometry.
Results: Levels of THC varied greatly from 0.06 mg per serving in peanut drops to 100 mg per serving in an oatmeal cookie. Edibles were not properly packaged or labelled, and the levels of THC and dosage instructions were not declared.
Conclusion: In some cases, THC levels in local edibles exceeded the limit of 10 mg per serving set by regulators in the United States of America. This has serious health implications especially for children who are at risk of intoxication after eating these edibles which mimic well-liked snacks. Based on the above findings, it is strongly recommended that if the use or sale of cannabis edibles is to be sanctioned, then the relevant stakeholders should ensure that production and labelling be standardized and regulated.