Unveiling the vapour: Chemical insights and research directions for E-cigarettes in Malaysia

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ABSTRACT

Introduction: This plenary session provides a comprehensive overview of recent research on the chemical composition and health implications of e-cigarettes in Malaysia, focusing on e-liquids and aerosols. **Discussion:** E-liquids primarily consist of nicotine, propylene glycol (PG), vegetable glycerine (VG), and various flavouring agents. Heating these liquids generates harmful substances such as formaldehyde, acetaldehyde, and acrolein. Studies reveal significant variability in nicotine concentrations (3 mg/mL to 50 mg/mL), with many "nicotine-free" products actually containing nicotine. Health risk assessments indicate substantial non-cancer risks—including respiratory and neurological symptoms—and cancer risk indices exceeding safety thresholds. Conclusion: These findings underscore the urgent need for regulatory reform. Research priorities include longitudinal toxicity studies of flavouring agents, device-specific emission profiling, and biomarker development for exposure monitoring.

Keywords: E-cigarettes, Chemical Profiling, Health Risk Assessment, Malaysia, Regulatory Policy.