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Evaluation of Anti-Biofilm Activity of Virgin Coconut Oil (Avco) Against Streptococcus Mutans ATCC 2157

Umami Aqilah Haron, Zurainie Abllah

International Islamic University Malaysia

Presenter: Umami Aqilah Haron

Introduction: Dental caries has remained a major oral health problem worldwide. Streptococcus mutans is considered as a vital cariogenic agent in the oral cavity. It can synthesise soluble and insoluble glucans from sucrose by glucosyltransferases enzymes and develops stable biofilm on the tooth surface. In the previous study, the fatty acids profile of activated virgin coconut oil (AVCO) have been described, and it includes the excellent antimicrobial activity of the oil. The current study aims to evaluate the antibiofilm effect of AVCO against the Streptococcus mutans ATCC 2157 biofilm in vitro. **Materials and method:** The minimum biofilm inhibition concentration (MBIC) and the minimum biofilm eradication concentration (MBEC) for antibiofilm activity were determined by serial dilution method, and biofilm thickness on S. mutans was quantified by confocal laser scanning microscopy (CLSM). **Results:** At the concentration of 15.63 mg/ml of AVCO, it successfully inhibits the development of S. mutans ATCC 21575 biofilm and AVCO (62.52 mg/ml) eradicate biofilm that was formed by the bacteria. The z-stack images obtained from CLSM allows the construction of 3-D biofilm structure and a significant difference in the thickness of S. mutans ATCC 21575 biofilm pre and post-treatment with AVCO were observed. **Conclusion:** AVCO showed good potential as anticaries where it possesses the ability to inhibits and eradicate S. mutans ATCC 21575 biofilm. A future study to evaluates the interaction of individuals fatty acids present in AVCO against proteins that relate to biofilm formation of S. mutans can be performed utilising the molecular docking tools.