

P-201**Aerosolized Honey as a Regenerative Agent in Animal Model of Asthma**Kamaruzaman NA¹, Sulaiman SA², Gurjeet K³ and Yahaya BH¹

¹Cluster of Regenerative Medicine, Advanced Medical & Dental Institute, Universiti Sains Malaysia, 13200 Kepala Batas, Penang, Malaysia; ²Department of Pharmacology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia ³Institute for Research in Molecular Medicine, Universiti Sains Malaysia, 11800, Penang, Malaysia

Asthma is a disease characterized by infiltration of inflammatory cells into lung tissue, excessive mucus production, chronic airway obstruction and airway hyperresponsiveness (1). Inhaled corticosteroid is a common therapy for asthma. However, prolonged usage of drug therapy may lead to several side effects (2). Honey has been extensively studied and claimed to be effective in treating cough and asthma. Honey nebulisation has been proven effective in treating upper respiratory disease (3). However, the effects of aerosolized honey in reducing asthma-related symptoms at the cellular level have not been studied. The aim of this study was to determine the effects of honey on histopathology of airways in rabbits induced to have chronic lung disease that mimicked the human condition of asthma. The effects of honey to act as both rescue and preventive agents in alleviating asthmatic symptoms were tested. In both rescue and preventive treatment groups, 12 New Zealand white rabbits (n=3) were sensitized via intraperitoneal (ip) injections of 0.1mg/ml ovalbumin (OVA) with 10mg/ml aluminium hydroxide (alum) at day 1 and day 14. Sterile phosphate buffer saline (PBS) was used to act as negative control. Following the ip injections for OVA-treated group (n=3) (positive control group), rabbits were exposed to OVA inhalation (10mg/ml) for 3 subsequent days starting from day 28 and euthanized at day 31. In negative control group, PBS was given in a similar manner as OVA-treated group. For rescue treatment group (n=3), following the ip injections, at day 23 until day 27, animals were treated with 25% of honey using aerosolisation technique followed by euthanasia at day 28. For preventive treatment group (n=3), following second ip injection with OVA, aerosolized honey was continuously given from day 23 until day 27. Subsequently, rabbits were further exposed to OVA inhalation for 3 days starting from day 28 until day 30 and euthanized on day 31. For each treatment, 2ml of honey was aerosolised for 20 min duration. Histopathological changes of the airways were determined using H&E and AB-PAS staining. A massive infiltration of eosinophils, lymphocytes and mononuclear cells were observed in OVA-treated animals. The airways also showed disruption of epithelium, goblet cell hyperplasia and thickened subepithelial smooth muscle layer, which are characteristic of asthma. Animals exposed to aerosolised honey, especially in the rescue group, showed reduction of these inflammatory changes. In conclusion, this study shows that aerosolised honey are effective in reducing asthma-related cellular changes in models of rabbit-induced chronic lung disease.

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