

Preparation and Characterization of a Mosquito Repellent Paint

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Paints are used to decorate, protect and extend the life of natural and synthetic materials. The current research focuses on a different aspect on which paint can be utilized. The objective of this study was to develop a mosquito-repelling paint while maintaining the desired paint properties. In this regard, neem oil, one of the known mosquito repellents was used as an additive in emulsion paint formulation. A series of paint samples were made according to the interior paint formulation by varying the amount of neem oil. The reference sample was prepared without adding neem oil. In addition, properties were also compared with a commercial paint sample. For each 500 g of emulsion paint, neem oil was added in amounts to prepare samples with neem oil percentages 4 wt%, 8 wt% and 12 wt%. Various paint properties of thus prepared paint samples were investigated. The mosquito repellency of the paint samples were monitored by counting the mosquitoes flying on to the surfaces coated with the paint at 30-minute intervals for 4 hours. Neem oil added paint samples show improved mosquito repellency, however, it could be retained only for few days. This drawback could possibly be remedied by using a proper bonding agent to prevent volatility of the active ingredient. According to the results, opacity and glossiness of the paints with neem oil are lower compared to those of the industrial paint sample. Some improvements in these properties could possibly be achieved by maintaining pH in the neem oil added samples close to that of the industrial sample. According to the results, water resistance is significantly reduced upon adding neem oil compared to the industrial paint sample. Further research must be carried out with a proper bonding agent to retain the desired paint properties as well as the mosquito repellency.

Keywords: Mosquito-repelling paint, neem oil