Use of melanocytes and keratinocytes in co-culture to assessment the potential of a Brazilian flora nut as depigmentant agent

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Introduction: Popular reports indicate the use of a known nut from Brazil as a skin depigmentant agent. This study proposes to use human melanocytes and keratinocytes in co-culture in vitro and subsequently treat them with extracts obtained from the nut’s shell. The L-DOPA, stimulator agent of melanogenesis, was standardized in co-culture as standard control for the presence of melanocytes by pigmentation.

Experimental Part: The nut’s shells were extracted by heating at 200 °C, and by solvent, this way obtaining two different extracts, called (A) and (B). Based on topical use cream formulations developed in previous studies, were conducted tests of solubility of the extracts under the same concentrations of the formulations, in the culture medium. Cytotoxicity assays were performed with these soluble concentrations. Then these were placed in co-culture and tested by DOPA reaction. A project to build a camera for phototoxicity assay was elaborated according to ©ECVAM: INVITTOX protocol.

Results/Discussion: Cytotoxicity assay was performed with soluble concentrations, these had shown to be cytotoxic to the cells. Therefore, lower concentrations were tested and showed to be non-cytotoxic. Murine fibroblasts, human melanocytes and keratinocytes are being tested in co-culture and then treated with extracts (A) and (B), negative and positive control, in order to assess their inhibitor of melanogenesis property by DOPA reaction. Hydroquinone has been used as positive control, for further comparison. Preliminary results showed that extract (A), in lower concentrations, stimulates melanogenesis rather than inhibit. Camera was constructed attending the INVITTOX. Tests for qualification are underway.

Conclusion: It is believed that cytotoxic concentrations act as a depigmentant by peeling. Therefore, an air-liquid system will be used to evaluate these doses against their potential as a skin depigmentant agent.

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