PHOTOTOXICITY OF PYRENE AND ITS MONO-SUBSTITUTED DERIVATIVES ON HACAT KERATINOCYTE CELLS

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Abstract: Polycyclic aromatic hydrocarbons (PAHs) are a class of mutagenic environmental contaminants produced from the burning of fossil fuel, burnt food, tobacco smoke, and other sources. PAH exposure can occur by ingestion, inhalation, and absorption through the skin. They may potentially cause damage when being acted upon by UV light. The PAHs investigated are pyrene, which is found on the EPA’s top pollutant list, and 1-hydroxy-, 1-amino, 1-bromo-, and 1-nitropyrene. After confluence, HaCaT keratinocytes were grown on 96 well plates under 37°C/5% CO₂ incubation for 24 hrs and later exposed to the PAHs [0, 0.2, 1, 5, and 25 µM] with or without UV light. MTT Assay was conducted 24 hrs after treatment to test for phototoxicity of the combination of PAHs and UV light. Preliminary data have shown that the cell plates treated with pyrene and UV light were phototoxic; whereas, those plates treated with pyrene in the absence of UV light did not exhibit signs of toxicity.

Keywords: Polycyclic aromatic hydrocarbons, pyrene, phototoxicity, HaCaT cells

Acknowledgement: TP thanks the financial support by the Department of Education Title III grant.