Protective Effects of Turmeric on Ultraviolet-Radiation Exposed Fruit Flies (Drosophila melanogaster)

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This investigation studied the effect of various exposures of Ultraviolet radiation on Fruit Flies (Drosophila melanogaster) cultivated in Turmeric, a spice that has previously been proven to have some medical benefits. The purpose of this project is to find cost-effective ways to guard or reduce the health risks of UV radiation. Adult fruit flies were placed in tubes containing a medium with Turmeric. The adults would lay larvae and these larvae would consume the Turmeric medium. In order to have a consistent development level of the larvae, third instar larvae were chosen for irradiation. The mediums of Turmeric contained various dilutions. After diluting the serial through a standard diluting process, there were 5 dilutions, 1, .1, .01, .001, .0001. After separating 10 larvae into petri dishes for all the various dilutions, the larvae were then exposed to Ultraviolet radiation on an Ultraviolet transilluminator for different time increments: 180 seconds, 150 seconds, and 90 seconds. Finally, at intervals after the exposure, the fruit flies were observed for whether they had developed any mutations, and data was collected in order to determine the protective effect of the Turmeric on the fruit flies. A previous study had been conducted with blackworms (Lumbriculus variegatus) with three different spices: Turmeric, Coriander, and Cumin. After the study was completed, Turmeric was shown to have the most protective affect from Ultraviolet exposure. Therefore, Turmeric was chosen as the spice used for this study.