

Analysis of chill-coma recovery in Indian *Drosophila* species

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Chill-coma recovery is an important trait for thermal adaptation and an effective tool of cold resistance measurement in *Drosophila* species. Our study was aimed at evaluating chill coma recovery for *D. kikkawai*, *D. melanogaster* and *D. ananassae* at seven different geographical locations with varying altitudes. The flies (3-4 days old) were placed individually in 42 ml glass vials, which were immersed into ice in an insulated icebox. The vials were removed after 14 hrs and recovery time was scored. Flies were considered recovered when they stood up. These flies were initially reared at 21 °C temperature and were given a stress of 0-1 °C i.e. Chill Coma. Then the recovery time of males and females were noted separately at room temperature i.e. 25 °C. The average chill-coma recovery time in minutes for *D. kikkawai* female was 70.364±1.50 and *D. kikkawai* male was 67.542±1.43. The average chill-coma recovery time for *D. melanogaster* female was 34.57±0.61 and *D. melanogaster* male was 37.66±0.63. The average CCR time for *D. ananassae* female was 56.610±1.19 and *D. ananassae* male was 70.32±2.61. In case of *D. ananassae* female Chill-Coma mortality rate was 12-13%. In case of *D. ananassae* male Chill-Coma Mortality rate was 18-19%. In both *D. kikkawai*, *D. melanogaster* 100% chill coma recovery was observed with no Mortality. Our results indicate that *D. kikkawai* & *D. melanogaster* species are more tolerant to cold stresses and would rapidly adapt themselves in colder environment for survival than *D. ananassae* species.

Keywords: Chill-coma recovery, Cold-Stress Resistance, *Drosophila*, Adaptation.

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Evaluation of antibacterial and antifungal potential of different varieties of potatoes

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Many spices are used as medicine, religious rituals, cosmetics, perfumery, or for eating as vegetables. The term spices defined as the dried seed, fruit, root, bark, or vegetative substance used in nutritionally insignificant quantities as a food additive for flavor, color, or as a preservative that kills harmful bacteria or prevents their growth. In present study, we carried out a systematic record of the relative antioxidant activity of organic solvent extract of five spices i.e. *Eugenia Caryophyllus* (Clove), *Vertiveria zizanioides* (Khus khus), *Cinnamomum Zeylanicum* (Dalchini), *Terminalia chebula* (Harad), *Amomum krervanh* (Black cardemom), using ascorbic acid as standard antioxidant. Free radical scavenging activity was evaluated by using 1,1-diphenyl-2-picrylhydrazyl (DPPH) free radical scavenging. Xylene, ethanol and chloroform were used as solvents and the effect of solvents on antioxidant activity of these spices was also compared. Total flavonoid, and phenolic content of the extracts were also determined using standard phytochemical reaction protocols. In the DPPH system, the antioxidant activity of *Amomum krervanh* (92%) and *Terminalia chebula* (92%) was found to be superior followed by *Eugenia Caryophyllus* and *Cinnamomum Zeylanicum*. The present study revealed that the selected spices would exert several beneficial effects by virtue of their antioxidant potential and could be harnessed as drug formulations.

Keywords: Antioxidants, Free radicals, DPPH, Spices.