Purple grape juice as a protector against acute x-irradiation induced alterations on mobility, anxiety, and feeding behaviour in mice [El mosto de uva tinta como protector frente a las alteraciones agudas de movilidad, ansiedad y comportamiento ingestivo inducidas por rayos x en ratones]

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The aim of this work was to test the hypothesis that a moderate intake of organic purple grape juice shows a positive radiomodifier effect over early behavioural damage following acute X-irradiation in mice. Anxiety-, locomotion-, and feeding-related responses to 6 Gy total body X-irradiation (TBI) were studied via open field, Rotarod, and feeding/drinking recording. Thirty-two male mice weighing 25-30 g were grouped according grape juice (J) or water (W) ad libitum drinking and either non-irradiated (N) or irradiated (R). 24 h post-TBI the access frequency to the center and corners of the open field was decreased, and the total stay in the corners increased, in RW vs. NW mice. Anxiety-related parameters decreased in RJ vs. RW mice. Rotarod latency times increased 72 h post-TBI in RJ vs RW mice. No overall changes in food and drink intake were observed along the experimental period. On the irradiation day, bout number was increased and bout duration was decreased in RW mice. The changes were reversed by purple grape juice intake. Grape juice intake before and after TBI can overcome several radiation-induced changes in behaviour within 24-72 hours after sub-lethal X-irradiation. This beneficial effect on short-term anxiety and mobility-related activities could probably be included in the list of flavonoid bio-effects. The present findings could be relevant in designing preventive interventions aimed to enhance body defense mechanisms against short-term irradiation damage.

Anxiety

Behaviour

Grape juice

Ionizing radiation

Mice

animal

anxiety

beverage

chemistry

drug effects

etiology

feeding behavior

male

motor activity

mouse

prevention and control

psychology

Radiation Injuries, Experimental

radiation response

Vitis

X ray

Animals

Anxiety

Beverages

Feeding Behavior

Male

Mice

Motor Activity

Radiation Injuries, Experimental

Vitis

X-Rays