Grapes protect against ultraviolet radiation

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Some compounds found in grapes help to protect skin cells from the sun's ultraviolet radiation, according to a study by researchers from the University of Barcelona and the CSIC (Spanish National Research Council). The study supports the use of grapes or grape derivatives in sun protection products.

Ultraviolet (UV) rays emitted by the sun are the leading environmental cause of skin complaints, causing skin cancer, sunburn and solar erythema, as well as premature ageing of the dermis and epidermis. Now, a Spanish study has proven that some substances in grapes can reduce the amount of cell damage caused in skin exposed to this radiation.

UV rays act on the skin by activating 'reactive oxygen species' (ROS). These compounds in turn oxidise macromolecules such as lipids and DNA, stimulating certain reactions and enzymes (JNK and p38MAPK) which cause cell death.

A group of scientists from the University of Barcelona and the CSIC have shown that some polyphenolic substances extracted from grapes (flavonoids) can reduce the formation of ROSs in human epidermis cells that have been exposed to long-wave (UVA) and medium-wave (UVB) ultraviolet radiation. The study, carried out in vitro in the laboratory, has been published in the Journal of Agricultural and Food Chemistry.

Grape-based sun protection

"These polyphenolic fractions inhibit the generation of the ROSs and, as a result, the subsequent activation of the JNK and p38 enzymes, meaning they have a protective effect against ultraviolet radiation emitted by the sun", Marta Cascante, a biochemist at the University of Barcelona (Spain) and director of the research project, tells SINC.

The researchers found that the higher the degree of the flavonoids' polymerisation and formation of compounds containing gallic acid, the greater their photoprotective capacity.

The study suggests that these "encouraging results should be taken into consideration in clinical pharmacology using plant-based polyphenolic extracts to develop new photoprotection skin products.

Cosmetics and drugs containing grape compounds are already available, but the way they act on cells has not been well understood until now. "This study supports the idea of using these products to protect the skin from cell damage and death caused by solar radiation, as well as increasing our understanding of the mechanism by which they act", concludes Cascante.

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