

Evaluation of the *in vitro* and *in vivo* genotoxicity of almond skins.

Zhang, X 2011
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Abstract:

Objective It aims to study potential genotoxicity of almond skins.

Methods A bacterial reverse mutation assay was performed on *S. typhimurium* strains TA97, TA98, TA100, TA102, and TA1535 in the absence or presence of S-9 mixture at a dose range of 312.5 to 5 000 µg/plate. A micronucleus test and a mammalian bone marrow chromosome aberration tests were performed in Swiss Albino (CD-1) mice at doses of 625, 1 250, and 2 500 mg/kg bw used.

Results Almond skins exerted no mutagenic activity in various bacterial strains of *Salmonella typhimurium* in either the absence or the presence of metabolic activation at all doses tested. Various doses of almond skins did not affect the proportions of immature to total erythrocytes, the number of micronuclei in the immature erythrocytes, or the number of structural and numerical chromosomal aberrations of Swiss albino mice.

Conclusion Almond skins are not genotoxic under the conditions of the *in vitro* bacterial reverse mutation assay and two *in vivo* tests - micronucleus test and mammalian bone marrow chromosome aberration test, which supports the safety of almond skins for dietary consumption.