

Salmonella typhimurium reverse mutation assay with the Serenoa repens extract Prostan®

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Objective

Evaluation of the mutagenicity of the test medication since no published data exist on it for any *Serenoa repens* preparation so far.

Material and Methods

Test medication:

Ethanollic extract (94% V/V) from dried fruits of the Saw palmetto (*Serenoa repens*) DEV, 9-12 : 1.

Purity: 85% fatty acids and 14.5% ethyl esters of them. The extract is the basis of the marketed product Prostan®.

Test system:

Five strains of *Salmonella typhimurium* that carry a mutant gene making it unable to synthesize the amino acid histidine (His) from the ingredients of its culture medium were tested. The induction of gene mutations was studied by counting colonies, indicating hereby the reversion of His-absent to His-present. The test assay is also known as AMES-test.

Experimental performance:

The assay was carried out by two independent experiments with and without liver microsomal activation (S9 mix from male Whistar rats) for each strain. The addition of S9 mix is necessary to overcome lack of bacterial enzyme systems which convert promutagens into active DNA damaging metabolites in mammals. The extract was investigated in concentrations of 3, 10, 33, 100, 333, and 1000 mg/plate without S9 mix and 10, 33, 100, 333, 1000 and 2500 mg/plate with S9 mix, each with a negative, positive and solvent control. All concentrations were tested first for their toxicity. If a plate incubation test did not show an increased mutagenicity then the more sensitive pre-incubation test was carried out. All tests were performed according to Good Laboratory Practice (GLP).

Results

Toxicity of the extract was very low by showing normal background growth up to 2500 mg/plate with S9 mix and 1000 mg/plate without S9 mix. Borderline of high toxicity is at an estimated level of 100 mg/plate.

As to mutagenicity no substantial increase of the number of revertant colonies occurred in any of the five tested strains in all test concentrations with or without S9 mix. No gene mutations by base pair changes or frameshifts in the genome strains were induced. Appropriate reference mutagens which were used as positive controls showed a distinct increase in induced revertant colonies.

Conclusions

The negative mutagenic results of the *Serenoa repens* extract Prostan®, studied by the *Salmonella typhimurium* reverse mutation assay (AMES-Test) contribute additionally to the known safety of Sabal extracts experienced by long term clinical studies and by own pharmacovigilance data.