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## An *in vitro* and LC-MS-MS studies on the DNA damaging effects of phytochemicals partially isolated from an extract of *Glinus lotoides*.

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A n extract of *Glinus lotoides*, a medicinal plant used in Africa and Asia for various therapeutic purposes, was recently shown to cause DNA damage *in vitro*. To further explore the potential genotoxicity of this plant, fractionation of the crude extract was performed using reverse phase solid-phase extraction and a stepwise gradient elution of methanol in water. Four fractions were collected and subsequently analyzed for their DNA damaging effects in mouse lymphoma cells using an alkaline version of the comet assay. To identify potential genotoxic and non-genotoxic principles, each fraction was then subjected to liquid chromatography coupled to mass spectrometry, LC-MS/MS. 1D and 2D nuclear magnetic resonance analyses were used to confirm the identity of some saponins. Although, fractions containing a mixture of flavonoids and oleanane-type saponins or oleanane-type saponins alone produced no DNA damage, those containing hopane-type saponins exhibited a pronounced DNA damaging effect without affecting the viability of the cells. To conclude, even if this study presents evidence that hopane-type of saponins are endowed with a DNA damaging ability, further studies are needed before individual saponins can be cited as a culprit for the previously reported genotoxicity of the crude extract of *G. lotoides*.

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## AFM and SIMS surface and cation profile investigation of archaeological obsidians: New data

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SIMS (secondary ion mass spectroscopy) of hydrogen profiles is used for obsidian hydration dating (OHD). Obsidian surface roughness and rind structure both play a major influence on the OHD by H+ SIMS profiles (SIMS-surface saturation dating method). AFM (atomic force microscopy) investigation coupled with quadrupole-SIMS hydrogen data profiles established a validation criterion of quantitative evaluation of roughness for OHD dating purposes. More evidence of the importance of the surface morphology at the nano-scale was given for five obsidian tools of different origin. The latter relates to the dynamic ion influx diffusion kinetics between surface and surrounded sediment media, and the obsidian structure, thus, 2D and 3D surface mapping, as well as, cation profiling (C, Mg, Al and F) were made by TOF-SIMS and quad-SIMS. It was found that the C and Mg are considered as imposed criteria for accepting suitability of hydrogen profiles for further processing by SIMS-SS. The effect of roughness to dating was discussed.

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