

Effects of immature cashew nut-shell liquid (*Anacardium occidentale*) against oxidative damage in *Saccharomyces cerevisiae* and inhibition of acetylcholinesterase activity

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ABSTRACT. The cashew tree (*Anacardium occidentale*) represents one of the major cheapest sources of non-isoprenoid phenolic lipids, which have a variety of biological properties: they can act as molluscicides, insecticides, fungicides, have anti-termite properties, have medicinal applications, and demonstrate antioxidant activity *in vitro*. Immature cashew nut-shell liquid (iCNSL) is a unique natural source of unsaturated long-chain phenols. Their use has stimulated much research in order to prepare drug analogues for application in several fields. The objective of the present study was to determine whether iCNSL has antioxidant properties when used in strains of the yeast *Saccharomyces cerevisiae* and to measure the inhibitory activity of acetylcholinesterase.

The constituents were identified using thin-layer chromatography, gas chromatography-mass spectrometry, Fourier transform infrared spectroscopy, and ^1H and ^{13}C nuclear magnetic resonance. The iCNSL contains anacardic acid, cardanol, cardol, and 2-methyl cardol. Immature cashew nut oil contains triacylglycerols, fatty acids, alkyl-substituted phenols, and cholesterol. The main constituents of the free fatty acids are palmitic ($\text{C}_{16:0}$) and oleic acid ($\text{C}_{18:1}$). iCNSL has excellent protective activities in strains of *S. cerevisiae* against oxidative damage induced by hydrogen peroxide and inhibits acetylcholinesterase activity. iCNSL may have an important role in protecting DNA against damage induced by reactive oxygen species, as well as hydrogen peroxide, generated by intra- and extracellular mechanisms.

Key words: Cashew nut oil; *Anacardium occidentale*; Antioxidant activity; Acetylcholinesterase