Antioxidant effects of *Syzygium cumini* extracts in superoxide dismutase yeast mutants

Pessano, N.T.C\(^1\); Jesus, J\(^2\); ROSA, A.S.\(^2\); Motta, P.R\(^1\); Motta, I.K.R\(^1\); Denardin, S.E.L.G\(^1,2\); Roehrs, R.\(^2\)

\(^1\) Curso de Farmácia, Unipampa, RS, \(^2\)PPGBioq, Unipampa, RS, Brazil

All parts of *S. cumini* are applied for medicinal purposes; however its leaves are the most used part. *S. cumini* leaves show anti-inflammatory, antibactericidal and anti-allergic effects. The plant possesses acetyl oleanolic acid, triterpenoids, ellagic acid, isoquercitin, quercetin, kaempferol and myricetin in different concentrations. Most of these compounds have been reported to possess antioxidant and free radical scavenging activities. Approximately 5% of the oxygen consumed by the mitochondria during respiration is not completely reduced to H\(_2\)O, yielding instead superoxide anion, hydrogen peroxide, and hydroxyl radical. From bacteria to human, a primary cellular defense against oxygen toxicity involves one or another form of the enzyme superoxide dismutase (SOD). In eukaryotes, SOD exists both as a manganese-containing enzyme located in the mitochondria (sod2) and as a cytosolic Cu/Zn-SOD (sod1). The objective of this research is to identify the antioxidant effects of leaves extracts in yeast lacking superoxide dismutase. The extracts were prepared with 5g of leaves using ultrasound bath at 45°C during 25 minutes, in water, water/ethanol (50:50) and water/ethanol (70:30). Strains *SOD*, *sod1\(\Delta\)*, *sod2\(\Delta\)* and *sod1\(\Delta\)sod2\(\Delta\)* were exposed to different extracts and extract/Paraquat. Paraquat was used to generate superoxide anion and to test the scavenger power of the extracts. The strain *sod1\(\Delta\)* was the only one with sensibility to extracts. The most interesting result came from the *sod1\(\Delta\)sod2\(\Delta\)* mutant, which presented little sensibility to extracts, and showed a protective effect from water extract to paraquat. It was possible to conclude that *S. cumini* water extract has antioxidant effects against superoxide anion generated by paraquat.

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