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Inhibitory effect of *Bauhinia rufa* on oxidative stress and enzymes related to metabolic syndrome

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The metabolic syndrome is characterized by a set of metabolic risk factors that increase the chance of developing cardiovascular diseases and type 2 diabetes. The present study was carried out to investigate the antioxidant potential and inhibitory of enzymes related to the metabolic syndrome of leaf methanolic extract of *Bauhinia rufa* (Bong.) Steud. (MEBr). Antioxidant activity was evaluated by DPPH and ABTS free radical scavenging assays, inhibition of β -carotene bleaching, FRAP, reducing power, evaluation of the antioxidant enzyme activity SOD, CAT and GPx, reduction of malonyldialdehyde (MDA) in human erythrocytes and inhibition of formation of advanced glycation products (AGEs) via fructose and via glyoxal. Enzymes related to metabolism investigated were α -amylase, α -glycosidase and lipase. The MEBr (1) presented antioxidant activity in the free radical capture assays DPPH (IC₅₀ 8.23±0.46 μ g/mL), ABTS (IC₅₀ 5.24±0.37 μ g/mL), inhibition of β - carotene bleaching (IC₅₀ 196.99±20.51 μ g/mL), FRAP (EC₅₀ 125.88±4.81 μ g/mL) and reducing power (EC₅₀ 231.11±2.87 μ g/mL); (2) stimulated the activity of SOD (16.64±1.40%) in the concentrations of 50 to 250 μ g/mL and did not alter the activity of CAT and GPx; (3) reduced the oxidative stress observed by the lower MDA content generated at concentrations of 75 μ g/mL (27.95±7.58%), 100 μ g/mL (50.18±2.54%), 125 μ g/mL (59.47±6.24%), and 250 μ g/mL (72.81±2.45%); (4) presented anti-glycation activity by reducing fructose-generated AGEs (IC₅₀ 2.76±0.09 μ g/ml) and via glyoxal (IC₅₀ 53.13±0.43 μ g/mL); and (5) inhibited α -amylase (IC₅₀ 6.80±0.09 μ g/mL), α -glycosidase (IC₅₀ 16.54±0.86 μ g/mL) and lipase activity (IC₅₀ 65.98±0.55 μ g/mL). Taken together, these data reveal the therapeutic potential of MEBr for the prevention and treatment of metabolic disorders.

Biography

Paola dos Santos da Rocha is a Biologist and pursuing PhD in Biotechnology and Biodiversity at Federal University of Grande Dourados, MS, Brazil. Her research interests include bioprospecting of medicinal plants and endophytic fungi applied to health bioassays (metabolic syndrome, diabetes, obesity, dyslipidemias, oxidative stress and cancer).

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