

ANTIOXIDANT POTENTIAL OF SWEET BASIL (OCIMUM BASILICUM L.) EXTRACT IN RATS



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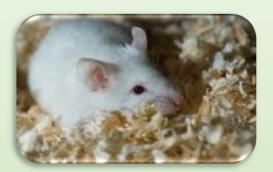
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Introduction

The interest in a natural and healthy lifestyle has moved the functional food under the spotlight. Basil (Ocimum basilicum L.) is one of the most important industrial and pharmaceutical crop species from Lamiaceae family having a major application in the food, pharmaceutical and cosmetic industries. It exhibits strong antioxidant activity due to high content of phenolic and flavonoid compounds. It is most commonly used in the form of teas, essential oils, liquid extracts, and as a spice and has an important application in the food, pharmaceutical and cosmetic industries. The aim of this research was to examine the effects of pre-treatment with basil extract on acetaminophen-induced acute liver injury in rats.





Metodology

Total phenolic and flavonoid contents were tested by spectrophotometric methods. For the chemical characterization of basil extracts, an appropriate high performance liquid chromatography (HPLC) method was applied. Effects of basil extract on oxidative stress parameters were determined in an in vivo model of acetaminophen-induced liver injury in 24 Wistar rats.

peroxide radical scavenging

Results

Total phenolic content was 52.61 ± 1.35 mg GAE/g of DE and flavonoid content was 0.5 ± 0.2 mg QE/g of DE. Basil extracts contain chlorogenic, p-hydroxybenzoic, caffeic, ferulic, vanilic, rosmarinic and cinnamic acid, quercetin and naringenin. IC50 values ranged from 0.22-45.76 µg/ml for DPPH radical, OH radical, H2O2 and lipid peroxidation. The extract lowered the intensity of lipid peroxidation and potentiated the activity of antioxidant enzymes, with statistically significant increase in catalase (p<0.01), glutathione reductase (p<0.05), glutathione transferase activities (p<0.05), except for glutathione peroxidase activity.

Table 1. Chemical characterisation of basil extract

Compound	Content	Table 2. IC50 values in different assays	
(m	g/g of of dry extract) –		
chlorogenic acid	0.16505	Assay	
p-hydroxybenzoic acid	0.14099		IC ₅₀ (μg/ml)
caffeic acid	0.09546		
vanillic acid	0.04568	DPPH radical scavenging	0.22 <u>+</u> 0.01
ferulic acid	ND	lipid peroxidation inhibition	45.76±1.54
rosmarinic acid	0.18373	hydroxyl radical scavenging	14.19±1.03

cinnamic acid	0.18331
rutin	ND
quercetin	4.77174
naringenin	0.18171

ND - non detected

Conclusion

The obtained results indicate that basil extract, produced by a simple, convenient, and widely accessible mode of extraction, easily done without any sophisticated equipment, exhibits several beneficial properties. In addition to high antioxidant in vitro activity, the present study demonstrated significant in vivo antioxidant potential of aqueous basil extract in a model of acetaminophen induced liver injury. Antioxidant effects were apparent though the increase in the activity of antioxidant enzymes and decreased lipid peroxidation.



2.74±0.16