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Phytochemical screening of the common weed *Chrozophora rottleri*

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Abstract
Chrozophora, a plant species of the Euphorbiaceae family, was selected for the study for preliminary phytochemical analysis. Its antioxidant activity against nitrogen free radicals, hydroxyl free radicals and superoxide free radicals was evaluated *in vitro* and compared with the standard antioxidant ascorbic acid. The reducing power of the *Chrozophora rottleri* was compared to the standard antioxidant BHT. It is clear from the results that the *Chrozophora rottleri* exhibited significantly higher *in vitro* antioxidant IC_{50} values compared to the samples. Therefore, this study did not find evidence of *in vitro* antioxidant activity against free radicals; Phytochemical analysis revealed the presence of alkaloids, flavonoids, glycosides, tannin saponins, triterpenoids and terpenoids. Therefore, although it shows that there is no antioxidant problem in plant extracts, the discovery of very important contents in phytochemical screenings lays the foundation for drug research.

Keywords: Phytochemical screening, *Chrozophora rottleri*, weed

Introduction
Antioxidants are molecules that prevent the oxidation of other molecules. Oxidation reactions Jeon *et al.* (2006) [9] can produce free radicals Halliwell (1989) [1] can cause immune system damage in cells and cause cell damage or death. Although oxidation reactions are necessary for life, they can be harmful. Therefore, plants (Indian Medicinal Plants, 1994) [3] and animals have complex systems consisting of various antioxidants such as glutathione, vitamin C (Sheng *et al*., 2008) [5], it contains vitamin E and enzymes such as catalase, superoxide dismutase and various peroxidases. Low antioxidant levels or inhibition of antioxidant enzymes can cause oxidative stress and damage or kill cells. Since oxidative stress appears to be an important factor in many human diseases, antioxidants have been explored for medical uses, particularly in the treatment of stroke and neurodegenerative diseases. However, it is not clear whether oxidative stress is the cause or the result of the disease (Cotran *et al.* 1999) [4]. Antioxidants are widely used as food ingredients and have been studied for their role in preventing diseases such as cancer, heart disease, and liver disease. Since fruits and vegetables have been shown to be good sources of antioxidants, this suggests that antioxidants may protect against some diseases.

Materials and Methods
Leaves of the plant (*Chrozophora rottleri*) were collected in polythene bags from in and around Sidhi (M.P.). The leaves are air dried for two weeks. The identification of the plant is done with the help of a Taxonomist. Phytochemical analysis (Kiselova *et al.* 2006) [8], the dried leaf material was grounded into fine powder (20 g) and are subjected to the extraction of bioconstituents using ethanol in soxhlet apparatus for 12hours.Extracts was filtered through the Whatman filter paper No.1. The filtrate was allowed to dry at room temperature and the solvent extracts were obtained. Condensed extracts were weighed and stored in air-tight containers at 4 °C till further investigation. For radical scavenging activity, 20g of the ground leaf samples were separately soaked in 200 ml of ethanol and allowed to stand for about 72h for extraction. After 72h, it was centrifuged at 10000rpm for 10mins.This is carried out thrice and the extract obtained is evaporated to dryness. Phytochemical screening of the extracts was carried out according to the methods described by Tease and Evans for the detection of active components like saponins, tannins, alkaloids, Phlobatanins, glycosides etc.

Regarding *in vitro* anti oxidant study the ethanol extract of *Chrozophora rottleri* (Gamble, 1921) [7] leaves were tested for their free radical scavenging properties using different *in vitro* techniques such as DPPH radical scavenging activity, Hydroxyl radical scavenging activity, Superoxide radical scavenging activity by method of Robak *et al.* (1998) [12], Nitric oxide radical scavenging activity by method of Sreejan *et al.* (1997) [11].

Results

The results were quite interesting to note that plant extract showed the presence of Alkaloids Flavonoids, Glycosides, Tannins, Saponins, Triterpenoids and Terpenoids whereas with reference to free radical scavenging, results are not quite compromising after the statistical analysis (Table No 1).

Table 1: [IC_{50} value of *Chrozophora rottleri* on various free radicals]

Tests	IC50	STANDARD	IC50
DPPH	78.72±0.49	Ascorbic acid	26.75
Hydroxyl	42.11±0.65	Ascorbic acid	18
Nitric oxide	98.77±0.667	Ascorbic acid	36
Superoxide	84.26±0.29	Ascorbic acid	17.3
Reducing ability	170.07±78.77	BHT	15.7

Discussion

Reactive oxygen species create oxidative stress in the tissue, causing further tissue damage. When the inhibitory ability of *Chrozophora rottleri* is evaluated, the IC_{50} value of *Chrozophora rottleri* against this free radical is higher than the reference sample ($p<0.0001$), indicating that its antioxidant activities are low. Based on the data, we conclude that the *Chrozophora rottleri* does not show significant antioxidant capacity *in vitro*. Current studies show no evidence of *in vitro* antioxidant activity against free radicals in human pathology (Cotran *et al*., 1999) [4]. A botanical component of *Chrozophora rottleri* may be found to have greater antioxidant capacity compared to the combination of botanicals found in *Chrozophora rottleri*. Analysis of herbal components will form a basis for drug discovery (Naik, 2003 and Kokate *et al.*, 2003) [2, 10].

Conclusion

Concluded the *Chrozophora rottleri* does not show significant antioxidant capacity *in vitro*. A botanical component of *Chrozophora rottleri* may be found to have greater antioxidant capacity compared to the combination of botanicals found in *Chrozophora rottleri*.

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