

Antioxidant activity and phenolic contents in *Ocimum sanctum* and *Ocimum basilicum*

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Ocimum sanctum Linn, *Ocimum basilicum* Linn, which have been normally used in traditional puja at every Indian Hindu home, was estimated by three different methods: ferric reducing antioxidant power (FRAP) assay, improved ABTS radical cation decolorization assay, and DPPH free radical scavenging assay. Additionally, their total phenolic contents were analyzed by Folin-Ciocalteu micro method. The result showed that *Ocimum basilicum* seemed to be better sources of antioxidant compounds, followed by *Ocimum sanctum*, respectively. Total phenolic content analysis, were significantly related to those of FRAP, ABTS, DPPH.

Key words : Antioxidant status, Total phenolic content, *O.basilicum*, *O.sanctum*

INTRODUCTION

Plants are one of the most important sources of medicines. *Ocimum basilicum* L. (labiatae) is a grassy and annual plant. The leaves of this plant are oval with a sharp tip and the flowers are yellow, white and pink. It is a native plant of Iran, Afghanistan and India (Mirheidar, 1990; Volak and Plantes 1997; Zargary, 1990). This plant is a popular culinary herb and its essential oils have been used for many years in food perfumery and dental products (Suppakul *et al.*, 2003) in Iranian traditional medicine (Dasgupta *et al.*, 2004; Javanmardi *et al.*, 2002). According to the literature, about 45 compounds are found in volatile oil of this plant and the major compounds are linalol, eugenol, methylchavicol, methylcinnamat, linolen, ocimene, pinene, cineol, anethol, estragol, thymol, citral and comphor (Mirheidar, 1990; Wang *et al.*, 2003 and Grayer *et al.*, 1996). Different parts of *Ocimum basilicum* have diuretic (Mirheidar, 1990; Zargary, 1990), antipyretic (Mirheidar, 1990) and antitussive effects (Mirheidar, 1990; Volak and Plantes 1997) and have been used to treat gastritis, stomach-ache, flatulence and constipation (Mirheidar, 1990; Volak and Plantes, 1997; Zargary, 1990; Avesina, 1990; Singh, 1999; Akthar and Muneer, 1989), vomiting and hiccup (Mirheidar, 1990). The seeds and the boiled extract are used for treatment of diarrhea. This plant also has therapeutic effects for nasal polyps (Mirheidar, 1990), upper respiratory tract diseases and dyspnea (Mirheidar, 1990; Volak and Plantes, 1997); inflammation of the urinary tract (Volak and Plantes, 1997) and it has been

used as a bathing solution for treatment of ulcers (Volak and Plantes, 1997; Avesina, 1990) and increase in lactation (Zargary, 1990). Inhalation of the fragrance of this plant is useful to alleviate headache (Mirheidar, 1990) and also it produces a favorable impression on the mental activity (Satoh and Sugawara, 2003). In the previous studies, the anti-inflammatory (Singh, 1999; Singh, 1998) anti-HIV (Yamasaki *et al.*, 1998), antioxidant (Dasgupta, *et al.*, 2004; Jayasinghe *et al.*, 2003; Yun, *et al.*, 2003; Lee and Shibamoti, 2002), antibacterial and antifungal (Suppakul *et al.*, 2003; Edris and Farrag 2003; Opalchenova and Obreshkova, 2003; Lachowicz *et al.*, 1998). In Ayurveda *Tulsi* (*Ocimum sanctum* L.) has been well documented for its therapeutic potentials and described as Dashemani Shwasaharni (antiasthmatic) and antikaphic drugs (Kaphaghna) (Sirkar, 1989). Although the traditional medical practitioners in India have been widely using this medicinal plant for management of various disease conditions from ancient time, not much is known about the mode of action of *Tulsi* and a rational approach to this traditional medical practice with modern system of medicine is also not available. In last few decades several studies have been carried out by Indian scientists and researchers to suggest the role of essential oils and eugenol in therapeutic potentials of *Ocimum sanctum* L. (Sen, 1993; AOAC, 1997). Eugenol is a phenolic compound and major constituent of essential oils extracted from different parts of *Tulsi* plant. The therapeutic potential of *Tulsi* has been established on the basis of several pharmacological studies carried out with eugenol and steam distilled, petroleum ether and benzene