

# Mineral Contents of *Ocimum Gratissimum* Leaves (African Basil)

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**Abstract:** *Ocimumgratissimum* belongs to the Lamiaceae family and is know generally as African Basil. *Ocimumgratissimum* leaves are widely used as local condiments in diets. The leaves were destalked, sorted, washed with potable water to remove dirt, air dried for 14 days under ambient temperature and milled into powder. The mineral contents of *Ocimumgratissimum* leaves were investigated. The percentage mineral contents were potassium  $81.63\pm 0.05\text{mg}/100\text{g}$ , calcium  $60.12\pm 0.43\text{mg}/100\text{g}$ , magnesium  $30.92\pm 0.15\text{mg}/100\text{g}$ . The results of the analysis showed that *Ocimumgratissimum* could be a good source of important food nutrients.

**Keywords:** *Ocimumgratissimum*, African Basil, minerals and drying

## 1. Introduction

Vegetables are the edible parts of plant that are consumed wholly or in parts, raw or cooked as part of main dish or salad. They are understood to mean the leafy outgrowth of plant used as foods and including those plants and parts of plants used in making soups or served as integral parts of the main source of meal [11]. It includes leaves, stems, roots, flowers seeds, fruits, bulbs, tubers and fungi [20], [19]. Vegetables are essential components of the human diet which contains a number of nutritional important vitamins such as vitamin A, B and C. They are also good sources of valuable nutrient such as protein, minerals, vitamins, fibers and other nutrients which are usually in short supply in daily diets [16]. They play an important role in maintaining general good health. There are various leafy vegetable that are regular ingredients in the diets of average Nigerian which include *Ocimumgratissimum*.

*Ocimumgratissimum* is a leafy vegetable. It is a herbaceous plant which belongs to the family Lamiaceae [6]. *Ocimumgratissimum* is also called scent leaf. It is widely distributed in tropical and warm temperate regions [18]. *Ocimumgratissimum* is about 1-2m long and 3-8cm wide. The strong aroma of the leaves is used in flavouring soups and also as a flavour in spicing meat products. The leaves can also be added as a local condiment in diets because of its aromatic properties [5]. *Ocimumgratissimum* is very rich in volatile essential oils [7]. It is also rich in tannins, steroids, terpenoidsflavonoind, and equally has a good antioxidants properties[1]. *Ocimumgratissimum* is an underutilized plant with high minerals, vitamins, fiber and phytochemical contents that make it nutritional important [1]. There is inadequate scientific knowledge of its nutritional potentials. Therefore the aim of this study was to provide information on the mineral contents of *Ocimumgratissimum*.

## 2. Materials and Method

### 2.1 Materials

Freshly harvested *Ocimumgratissimum* leaves were obtained from a local farm in Ilaro, Ogun state, Nigeria. They were collected early in the morning in clean polythene bags and taken into the Food Process Engineering Workshop of

Department of Food Technology, Federal Polytechnic Ilaro, Ogun state, Nigeria for identification, authentication and processing into fine powder for analysis.

### Drying Process of Samples

The freshly harvested *Ocimumgratissimum* sample were destalked, sorted, sertud, washed with potable water, air dried at  $28^{\circ}\text{C}$  for 14 days, milled into fine powder with an Apex mill and packed into low density Polyethylene film with 75 micron thickness prior analysis

### 2.2 Mineral Analysis

The Janway digital flame photometer (PF-P7) model was used to determine the potassium and sodium contents of the samples while Atomic absorption spectrophotometric (Perkin-elmal model 403, Norwalk, CT, USA) was used to determine the levels of calcium and iron in the samples after digestion with concentrated nitric acid [2]. Potassium was determined colorimetrically using spectronic 20 (Gallenkap, uk) with  $\text{KH}_2\text{PO}_4$ as standard

**Table 2:** Minerals Analysis of *Ocimum Gratissimum* Leaves

Parameters	Composition (% Dry Weight Basis)
Potassium	$81.63\pm 0.05$
Calcium	$60.12\pm 0.43$
Magnesium	$80.92\pm 0.11$
Sodium	$25.40\pm 0.02$
Zinc	$15.44\pm 0.15$

Values are mean of triplicate determination

## 3. Discussion

Minerals play important roles for proper tissue functioning [13] They also serve as cofactor for many physiological and metabolic functions [4]. Table II shows the mineral analysis of *ocimumgratissimum*. The minerals investigated in the *ocimumgratissimum* leaves were potassium, calcium, magnesium, sodium and zinc. The potassium content of  $81.63\pm 0.05\%$  was obtained. This value was higher than 42.74 reported by [10] for mucunaflagellipes. Potassium is crucial to heart and smooth muscle contraction, making it important for normal digestive and muscular function. The value of calcium content of *Ocimumgratissimum* was  $60.12\pm 0.43\text{mg}/100\text{g}$  higher than what was repeated by [8] for *Ocimumgratissimum*. Calcium is a mineral that must be

constantly taken to build bone and maintain the blood level of calcium. [21] reported that calcium represents about 40% of all the minerals present in the body. Magnesium occurs abundantly in chloroplasts as a constituent of chlorophyll molecule [15]. It also helps in calcium metabolism in bones [12]. The magnesium value in *Ocimum gratissimum* was  $80.92 \pm 0.11\% \text{mg}/100\text{g}$ . This value was lower than what [3], reported. The value of sodium of *Ocimum gratissimum* was  $75.4 \pm 0.02 \text{mg}/100\text{g}$ . Sodium is a mineral that the body needs to function properly. It is also needed with potassium to maintain normal water balance in the body. [14] reported that sodium intake of less than 2g/day increases calcium loss in urine and high intake contributes to hypertension in some people. The level of zinc in *Ocimum gratissimum* was  $15.44 \pm 0.15 \text{mg}/100\text{g}$  which was similar to ones reported by [15]. Zinc is found in every tissue in the body and is directly involved in cell division. Zinc is involved normal functioning of immune system and is associated with protein metabolism [9].

#### 4. Conclusion

It can be concluded that *Ocimum gratissimum* contains nutrients vital to the body which can be used to fight nutritional deficiencies

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