

**A REVIEW ON SWEET BASIL SEEDS: *Ocimum basilicum*****Kelvin Bucktowar\*, Mili Bucktowar, Luchmee Devi Bhoola**T.John College of Pharmacy, Gottigere, Bannerghatta Road, Bangalore-560083,  
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**\*Corresponding Author****Dr. Kelvin Bucktowar**T.John College of  
Pharmacy, Gottigere,  
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Karnataka, India.**ABSTRACT**

Sweet Basil Seeds are a boon and are considered to be a superfood due to its tremendous qualities it possesses in terms of medicinal uses thanks to its different chemical constituents. This review comprises on the wonderful aspects of Sweet Basil Seeds belonging to plant *Ocimum basilicum* (Family: *Lamiaceae*). Sweet Basil Seeds are a rich source of many polyphenolic flavonoids especially Orientin and Vicenin; essential oils like eugenol, citronellol, linalool, limonene, citral and terpineol; High levels of beta carotene, lutein, zeaxanthin, Vitamin A and Vitamin K; minerals like potassium, manganese, copper, calcium and magnesium, and vitamins C and folates. Moreover there have been various studies to prove that Sweet Basil Seeds are having properties

like weight loss, healthy skin, cooling effect, prevention of acidity, anti-inflammatory, anti-cancer, etc.

**KEYWORDS:** *Ocimum basilicum*, Sweet Basil Seeds, Superfood, polyphenolic flavonoids.**INTRODUCTION**

Sweet Basil Seeds are native to India. Sweet Basil (Tukmaria) initially originated from Asia and Africa. In approximately 350 BC, Sweet Basil was introduced to Greece by Alexander

the Great. It reached to England through India and lastly it visited the US in the 1600s.<sup>[1]</sup> Sweet Basil Seeds are a very versatile food. Sweet Basil Seeds (*Ocimum basilicum* belonging to the Family *Lamiaceae*) are sacred in many Asian countries such as India, Thailand, China, Vietnam, Sri Lanka due to their excellent nutritional properties. Moreover they are a famous ingredient used in Ayurvedic medicine in India. They are also used in many Asian dishes such as desserts and drink ('falooda'). Tukmaria has been part of a balanced diet in many countries for years and ages. However it is almost unknown in many countries mainly in Europe, North America and South America. Even though these seeds are not famous, they are now being discovered and gaining popularity due to their 'super qualities' they possess.

### CLASSIFICATION.<sup>[2]</sup>

<b>Kingdom:</b>	<i>Plantae</i>
Order:	<i>Lamiales</i>
Family:	<i>Lamiaceae</i>
Genus:	<i>Ocimum</i>
Species:	<i>O. basilicum</i>

### COMMON NAMES<sup>[3, 4]</sup>

English	Basil seeds, Sweet Basil Seeds
French	Basilic Cultive
German	Basilien Krau
Hindi	Sabja Seeds, Sabza Seeds
Tamil	Thiruneetru Patchai Vithai, Sabja Vithai
Telugu	Sabja Ginjalu
Punjabi	Baburi
Kannada	Kama Kasturi
Malayalam	Tirunitru
Kashmiri	Hazbo
Marathi	Tulasa Biyane
Bengali	Tulasi Bija
Pakistani	Tukh malanga
Indonesian	Selasih
Other Names	Tukmaria Seeds, Tulsi Seeds, Falooda Seeds, Thai Basil Sabja Seeds, Manjarika, Bisya, vebudipatri(telugu), Karandai, Dala, tukhmaria

**DESCRIPTION.**<sup>[5]</sup>

Sweet basil is an annual plant.

Seed Colour: Totally black and teardrop shaped

Seed Appearance: Similar to poppy seeds

Seed Odour : Neutral

Plant Size: 20 to 50 cm tall

Blossoming Period: Late Summer

Seeds swell much faster than Chia seeds and to a larger size

Leaves: Broadly Oval with a peak and come in pairs up the stem. They are bright green, but purple-coloured versions exist.

**PLANT PARTS USED**

It is usually the leaves and seeds that are used in herbal medicine, but sometimes all of the aerial parts of the herb are used. The herb is used when fresh because it loses much of its flavour when dried. The seeds are having ample of uses.

**CULTIVARS of *Ocimum basilicum***

COMMON NAME	SPECIES AND CULTIVARS	DESCRIPTION
Sweet basil	<i>O. basilicum</i>	With a strong clove scent when fresh. <sup>6</sup>
Lettuce leaf basil	<i>O. basilicum</i> 'Lettuce Leaf'	Have leaves so large they are sometimes used in salads. <sup>7</sup>
Mammoth basil	<i>O. basilicum</i> 'Mammoth'	Another large-leaf variety, stronger flavor than sweet Genovese. <sup>8</sup>
Genovese basil	<i>O. basilicum</i> 'Genovese Gigante'	Almost as popular as sweet basil, with similar flavour. <sup>8,9,10,11</sup>
Nufar basil	<i>O. basilicum</i> 'Nufar F1'	Variety of Genovese resistant to fusarium wilt.
Spicy globe basil	<i>O. basilicum</i> 'Spicy Globe'	Grows in a bush form, very small leaves, strong flavour. <sup>12</sup>
Greek Yevani basil	<i>O. basilicum</i> 'Greek Yevani'	Organically grown version of Spicy globe basil.
Fino verde basil	<i>O. basilicum</i> <i>piccolo</i>	Small, narrow leaves, sweeter, less pungent smell than larger leaved varieties. <sup>13</sup>
Boxwood basil	<i>O. basilicum</i> 'Boxwood'	Grows tightly like boxwood, very small leaves, strong flavour, great for pestos.
Purple ruffles basil	<i>O. basilicum</i> 'Purple Ruffles'	Solid purple, rich and spicy and a little more anise-like than the flavour of Genovese Basil.

Magical Michael	<i>O. basilicum</i> 'Magical Michael'	Award-winning hybrid with an uncommon degree of uniformity, and nice flavour for culinary use. <sup>14</sup>
Dark opal basil	<i>O. basilicum</i> 'Purpurascens'	Award-winning variety, developed at the University of Connecticut in the 1950s. <sup>15</sup>
Red rubin basil	<i>O. basilicum</i> 'Red Rubin'	Strong magenta color, similar flavour to sweet basil, also called Opal basil. <sup>8</sup>
Osmin purple basil	<i>O. basilicum</i> 'Osmin Purple'	Dark shiny purple with a jagged edge on the leaves, smaller leaves than red rubin. <sup>16</sup>
Cuban basil	<i>O. basilicum</i>	Similar to sweet basil, with smaller leaves and stronger flavour, grown from cuttings. <sup>17</sup>
Thai basil	<i>O. basilicum</i> var. <i>thyrsiflorum</i>	Called Ho-ra-pain Thai, gets its scent of licorice from estragole. <sup>5</sup>
'Siam Queen'	<i>O. basilicum</i> var. <i>thyrsiflorum</i> 'Siam Queen' <sup>18</sup>	A named cultivar of Thai Basil
Cinnamon basil	<i>O. basilicum</i> 'Cinnamon'	Also called <i>Mexican spice basil</i> , with a strong scent of cinnamate, the same chemical as in cinnamon. Has purple flowers. <sup>5</sup>
Licorice basil	<i>O. basilicum</i> 'Licorice'	Also known as <i>Anise basil</i> or <i>Persian basil</i> , silvery leaves, spicy licorice smell comes from the same chemical as in anise, anethole. Thai basil is also sometimes called <i>Licorice basil</i> . <sup>19</sup>
Mrs. Burns lemon basil	<i>O. basilicum</i> var. <i>citriodora</i> 'Mrs. Burns'	Clean, aromatic lemon scent, similar to lemon basil. <sup>18</sup>

### HABITAT.<sup>[20]</sup>

The plant is endemic to India, the Middle East and some islands in the Pacific. It is widely grown in Thailand and India. Today it is grown in all parts of the world where there is a warm or temperate climate. The herb has been cultivated in the Mediterranean countries for thousands of years.

### HOW TO OBTAIN SWEET BASIL SEEDS.<sup>[21]</sup>

- Let the Sweet Basil flower bloom.
- Let it wither and turn dry.
- Tiny black seeds will be attached to the dried flower pods.
- Wait until the flowers are dried, then cut them out.
- Put them in a plastic bag and shake it.

-The seeds will be nicely collected in the bag.

## Sweet Basil Seeds



Kelvin©

Note: If some of the seeds do not detach from the flower, it means that they are not fully matured.

### **BENEFITS OF SWEET BASIL SEEDS**<sup>[3,4,22,24,25,26,27,28,35,36]</sup>

Sweet Basil Seeds are having many uses, nutritional facts and medicinal values and surprising health benefits.

**1. Weight loss:** It is used for weight management purposes. It is rich in fiber thus it makes your stomach full and don't feel hungry to a certain period of time. After soaking into water, Sweet Basil Seeds have the capacity to expand to 30 times their original size making an excellent natural diet supplement.<sup>[23]</sup>

**2. Hair Nourishment.**<sup>[37]</sup> Sweet Basil seeds contain adequate amount of vitamin K, protein and iron. The latter are important to make your hair healthy and shiny.

**3. Healthy skin.**<sup>[38]</sup> Sweet Basil Seeds when used along with coconut oil is effective to eliminate many skin related diseases.

### **METHOD:**

-Take 100 ml of coconut oil and 1 teaspoon of crushed sweet basil seeds.

-Heat the mixture for 5 minutes.

-Strain and apply it over your skin to cure skin related problems like psoriasis, eczema.

**4. Treatment of Acidity.**<sup>[39]</sup> Sweet Basil Seeds are having cooling and soothing effects on the stomach. Rose petal jam also helps in treating stomach burn when used along with Sweet Basil Seeds.

**Method:**

- Take 1 cup of milk and 1 teaspoon of Sweet Basil seeds.
- Stir it well and drink the same to reduce burning sensation in your stomach.

**5. Treatment of Diabetes.**<sup>[40]</sup> The seeds work very well to control blood sugar in people with Type 2 diabetes.

**Method:**

- Take 1 teaspoon of soaked Sweet Basil Seeds.
- Add to 1 glass of milk.
- Add vanilla as a flavouring agent.

**6. Diuretic Properties.**<sup>[41]</sup> Sweet Basil Seeds have a swelling capacity. It thus promotes diuresis, that is, increase production of urine.

**Method**

- Mix a teaspoon of Sweet Basil Seeds in water.
- Add some honey and drink.

**7. Relieves constipation:** Soaked Sweet Basil Seeds when eaten help to cleanse the inner stomach. It ensures easy bowel movement and helps to flush out harmful toxins from the stomach. It is also taken with milk before going to bed to ease constipation.

**8. As a coolant:** These seeds are used to lower body heat. It is an important ingredient used in summer in a number of drinks such as 'Alooda-A Mauritian Speciality', 'Falooda in Asian Countries', 'Indian lemonade', 'Indian Lemon water'. These delicious and refreshing drinks are well appreciated by any person in need to quench their thirst.

**Method**<sup>[31]</sup>

- $\frac{3}{4}$  glass of milk at room temperature
- 2 to 3 tablespoon Evaporated
- 4 tablespoon of strawberry syrup
- 1 teaspoon of vanilla extract
- 1 tablespoon of soaked Sweet Basil Seeds
- Ice cubes
- 1 scoop of vanilla ice cream

- Mint to decorate
- Blend all the above ingredients except the Sweet Basil Seeds, mint and ice cream.
- Pour into your glass
- Add in your Sweet Basil Seeds and top with your vanilla ice cream and mint.

**9. Appetite Control:** The fibre in the soaked seeds has the effect of making you feel full. This ultimately helps reduce your appetite and assist with weight loss.

**10. Treatment of cold:** Sweet Basil Seeds provide relief from fever, cold, influenza and bronchitis.

### Method

- Take Sweet Basil Seeds and add ginger and honey
- Drink with lukewarm water

**11. Stress Relief:** Consumption of Sweet Basil Seeds is said to have an uplifting effect on your mood and can help with mental fatigue.

**12. Lowering Cholesterol Levels** <sup>[32]</sup> Sweet basil seeds could be used to reduce cholesterol levels in patients.

**13. Treatment of Migraine and depression**

**14. Treatment of asthma and respiratory disorders**

**15. Treatment of Arthritis:** Due to its anti-inflammatory properties, it is used to provide relief from swollen and painful joints. Eugenol is an important essential oil in basil that has been found to have anti-inflammatory function by acting against the enzyme *cyclooxygenase* (COX). COX enzyme mediates inflammatory reactions inside the human body. This enzyme-inhibiting effect of the eugenol in basil makes it an important remedy for symptomatic relief in individuals with inflammatory health problems like rheumatoid arthritis, osteoarthritis, and inflammatory bowel conditions.

**16. Genitourinary Infections:** Sweet Basil Seeds help with issues such as bladder infections and vaginal infections.

**17. Reduce the risk of Heart Disease:** Sweet Basil Seeds reduce the formation of plaque in the arterial walls thus reducing heart diseases.

**18. Improves memory:** Sweet Basil Seeds contain Omega-3 fatty acids which is required for brain growth. It is crucial nutrient for memory and brain performance.

**19. As an Aphrodisiac.**

**20. Diaphoretic, carminative and stimulant (Leaves of Tukmaria)**



**21. Reduce fever and as antidote to snake poison (Seeds and Roots of Sweet Basil)**

**22. As an insect repellent:** Basil oil is very good insect repellent. Basil essential oil is found to be larvicide and insect repellent. It is used as insecticidal fumigant in storage.

**23. Sore eyes and night-blindness**<sup>[29]</sup>

**24. Promote longevity**<sup>[29]</sup>

**25. Promote milk production in nursing women**<sup>[29]</sup> The plant is traditionally used to increase production of breast milk in lactating mothers.

**26. Anti Cancer:** The Omega-3 fatty acids and the antioxidants in Sweet Basil Seeds reduce the production of free radical in the body and reduce degenerative diseases like cancer, Alzheimer's diseases and many more.<sup>[30]</sup>

**27. Anti-Infective:** Direct Compression of Sweet Basil Seeds lead to formation of oils. These Oils inhibit many pathogenic bacteria like *Staphylococcus*, *Enterococci*, *Shigella* and *Pseudomonas*.

**NUTRITIONAL VALUES OF SWEET BASIL SEEDS.**<sup>[30, 31, 45, 46]</sup>

-Contains many polyphenolic flavonoids especially Orientin and Vicenin. These contribute to the antioxidant benefits. These compounds were tested in-vitro laboratory for their possible anti-oxidant protection against radiation-induced lipid per-oxidation in mouse liver.

-Rich in essential oils like eugenol, citronellol, linalool, limonene, citral and terpineol. These provide antibacterial and anti inflammatory benefits.

-High levels of beta carotene, lutein, zeaxanthin, Vitamin A and Vitamin K. These compounds help act as protective scavengers against oxygen-derived free radicals and reactive oxygen species (ROS) that play a role in aging and various disease processes.

-Zeaxanthin is a yellow flavonoid carotenoid compound, is selectively absorbed into the retinal macula lutea where it found to filter harmful UV rays from reaching the retina. Studies suggest that Sweet Basil Seeds which are rich in zeaxanthin anti-oxidant help to protect from *age-related macular disease* (AMRD), especially in the elderly.

-Contains good amounts of minerals like potassium, manganese, copper, calcium and magnesium, and vitamins C and folates. Potassium is an important component of cell and body fluids, which helps control heart rate and blood pressure. Manganese is used by the body as a co-factor for the antioxidant enzyme, *superoxide dismutase*.



-Very good source of iron at 40% RDA per 100 grams. Iron, being a component of hemoglobin inside the red blood cells, is one of the chief determinants of oxygen-carrying capacity of the blood.

-Contains 42% of carbohydrates, 20% proteins and almost 25% fats.

-High fiber content. 4 grams of Sweet Basil Seeds contains more fiber than an entire bulb of lettuce.

- Low in calories and have alpha-linolenic acid abbreviated as ALA acid. It is highly beneficial since it has Omega-3 fatty acids.

-High in calcium (244% of recommended daily dose (RDD)), magnesium (178% RDD), iron (499% RDD), potassium (56% RDD), folic acid (78% RDD) and vitamin E (53% of RDD).

#### **DRUG INTERACTION WITH TUKMARIA.** <sup>[34, 42, 43, 44, 47]</sup>

- 1. Insulin:** Using Sweet Basil Seeds with insulin may increase hypoglycemic effects. Chemicals in Tukmaria may lower blood sugar levels.
- 2. Anticoagulant / Antiplatelet drugs:** Basil interacts with drugs that slow blood clotting and may increase the chances of bruising and bleeding. Drugs that slow blood clotting include aspirin, warfarin (Coumadin), dalteparin (Fragmin), clopidogrel (Plavix), enoxaparin (Lovenox), heparin, ticlopidine (Ticlid), and others.
- 3. Surgery:** Because Sweet Basil Seeds might slow blood clotting there is a concern that it could increase the risk of bleeding during and after surgery. Intake of Sweet Basil Seeds should be stopped at least 2 weeks before a scheduled surgery.

#### **NUTRITIONAL ANALYSIS SUMMARY (PER 100g of Sweet Basil Seeds)** <sup>[33]</sup>

- Energy: 975 kJ / 233 Kcal
- Protein: 23 g
- Carbohydrates: 48 g
- Fat: 4 g
- Vitamin A: 744IU
- Vitamin B6: 1.34mg
- Vitamin E (alpha-tocopherol): 10.7mg
- Vitamin K: 1714.5 mcg
- Vitamin B1: 0.08 mg

- Vitamin B2: 1.2mg
- Vitamin B3: 4.9mg
- Vitamin B5: 0838 mg
- Vitamin B9: 310 mcg
- Vitamin B complex: 54.9 mg
- Betaine: 16.1 mg
- Calcium:2240 mg
- Iron: 89.8 mg
- Magnesium: 711 mg
- Phosphorus: 274 mg
- Potassium: 2630 mg
- Sodium: 76 mg
- Zinc: 7.1 mg
- Copper: 2.1 mg
- Manganese: 9.8 mg
- Selenium: 3 mcg

## CONCLUSION

Sweet Basil Seeds is known in French to be a ‘Grains Royales’ (English: Royal Seeds) due to a number of hidden health benefits they possess. Sweet Basil seeds were once a rarely known seed to us but slowly these small black seeds have grabbed the attention of the public due to the fact that they come with a myriad of medicinal uses.

The various surveys revealed clearly that Tukmaria Seeds are undoubtedly a superfood possessing many qualities. The king of herbs: Sweet Basil Seeds is one of the ancient and popular herbal plants which is brimming with powerful healing qualities.



**a)Tukmaria Plant**



**b) Tukmaria Flower**



**c) Tukmaria soaked in water**



**d) Alooda-A Mauritian Speciality**

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