

## MORPHOBIOLOGY AND MEDICINAL PROPERTIES OF SUNBERRY (*SOLAUM RETROFLEXUM L.*)

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### **Abstract:**

The article contains valuable information about the morphobiology and medicinal properties of the sunberry (*Solaum retroflexum L.*). Also, the substances found in the sunberry plant and their amount were written in the article.

**Keywords:** hybridization, pollinator, seed, inflorescence, stem, amino acids.

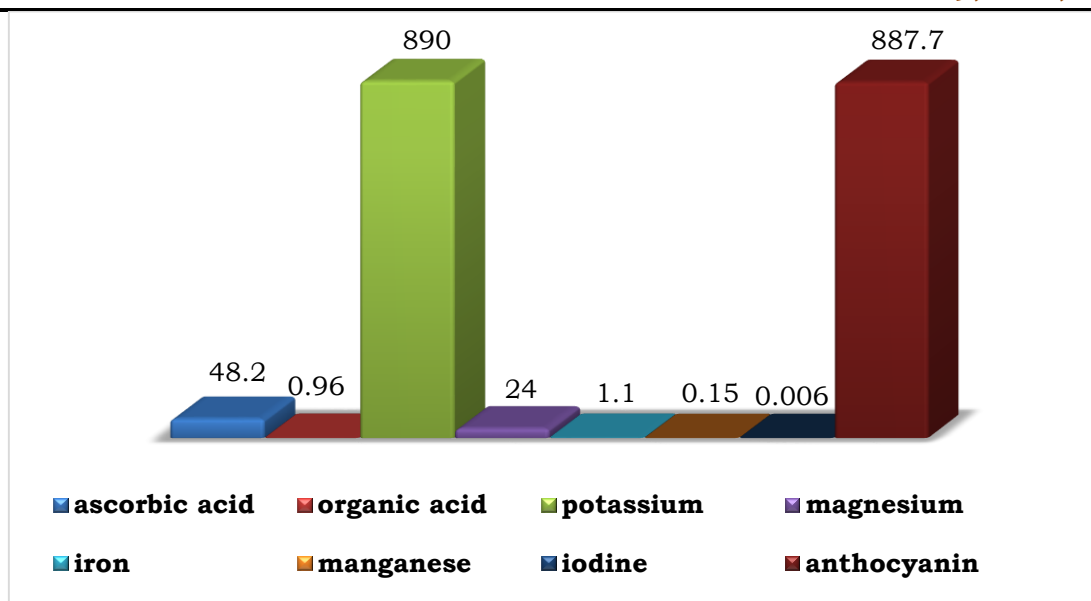
Sunberry (*Solanum retroflexum L.*) is a cultivated plant obtained by crossing two harmful but non-toxic plants. Sunberry hybrid was created in 1905 by American breeder scientist Luther Burbank. African nightshade (*Solanum quineense*) and European creeping nightshade (*Solanum vilosum*) were selected as parent forms to create this vegetable type. Perhaps because of the love of the sun, Burbank called this plant sunberry or sunberry [2].

Sunberry is a perennial plant belonging to the Solanaceae family, but some authors consider this plant species as an annual [4]. Sunberry is a plant resistant to pests and diseases, and it tolerates light frosts. According to its biological characteristics, the sunberry plant is almost the same as the tomato, but the sunberry is more frost-resistant and moisture-loving. It is a shrub-like plant, tall and widespread, resembling a small tree up to 1.0-2.0 m in height, with a thick tetrahedral stem with many lateral branches. The leaves are simple, stemless, oval, with a slightly pointed tip.

A small flower with five stamens, one seed, five petals (united) and two sepals. The flowers are 10-15 pieces per bush and are collected in lateral semi-umbrellas. They look like potato flowers. The flowering period is quite long. Fruits are fleshy berries, green at the beginning of the period of fruit formation, then this color turns black with an expressive shine [3].

Ripe fruits are the size of a pea, and they are collected in groups of 8-10 to 15 and form a cluster of fruits. The structure of the fruit shingle is close to tomato. The fruit ripens in August-October [2].

Sunberry has high productivity, adaptability to growing conditions, as well as good taste and a number of medicinal properties recognized by folk medicine and medicine. Fresh sunberry fruits are a valuable raw material for the production of healthy food products, as they contain a large amount of biologically active, mineral and coloring substances (Graph 1).

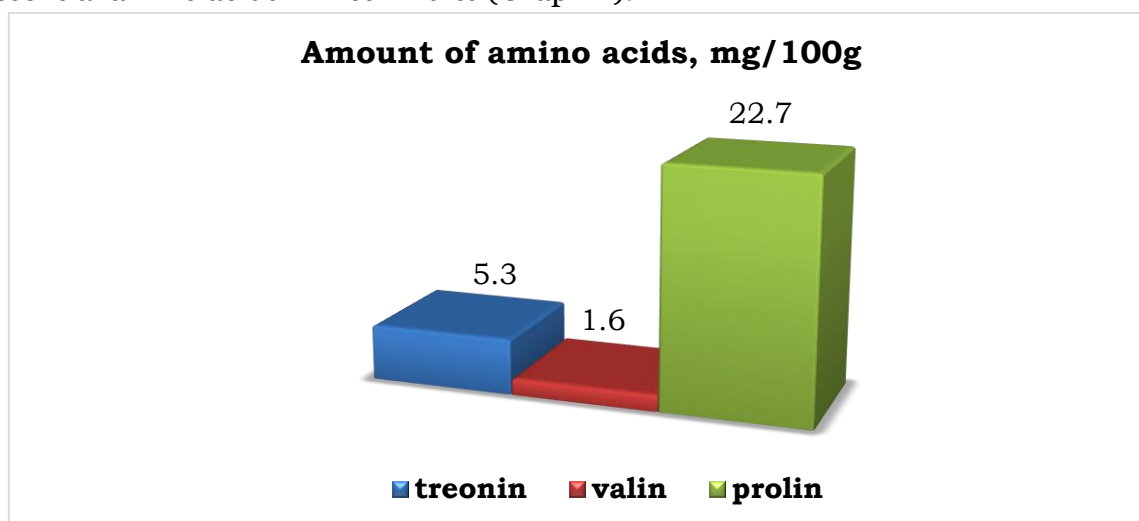


**Graph 1.** The amount of biologically active, mineral and coloring substances found in the sunberry plant.

In addition, the fresh fruits of the Sunberry plant have high antioxidant activity (229.4 mg/100 g) and a large amount of proteins (2.6%) and aromatic substances (aldehydes - 158.90 mg/100 g, aliphatic monocarboxylic contains acids - 138.43 mg/100 g).

The composition and jam obtained from sunberry fruits have high antioxidant activity (155.4 and 99.6 mg / 100 g), a large amount of aromatic substances (220.37 and 229.31 mg / 100 g), organic acids (0.49 and 0.51%) and anthocyanins (271.4 and 222.4 mg/100 g).

Sunberry fruits contain 10 types of amino acids, 4 of which (leucine, methionine, threonine and valine) are important. Threonine, valine, and proline dominate among essential amino acids in fresh fruits (Graph 2).



**Graph 2.** The most abundant types of amino acids.

The content of amino acids in jam and candy varies slightly, except for proline and threonine, their content decreases by 75-85% in processed products. The amount of lead, arsenic, cadmium and mercury in sunberry fruits is within the permissible concentrations. Sunberry berries are widely used in various fields. Jam, candies, jelly, wine and liqueur are made from it. The plant has a unique taste, and to get rid of this taste, the berries are boiled with boiling water before processing, flavorings from mint, lemon, and lofant plants are added to sunberry products.

Sunberry has many healing properties. Sunberry is called a miracle for its healing properties. Ancient doctors Hippocrates, Dioscorides, Avicenna successfully treated many diseases with sunberry seeds. Sunberry fruits have a beneficial effect on eyesight, and have been found to have antiseptic, laxative, and diuretic properties. In addition to healing properties, sunberry fruits can be used as a source of dietary and preventive nutrition.

For the treatment of hypertension, the juice obtained from the leaves, stems and flowers is mixed with equal amounts of honey and taken 2-3 tablespoons at night. This mixture first slightly excites a person, then calms down, dilates blood vessels, removes salts, toxins and uric acid from body tissues, lowers and stabilizes blood pressure. Wine made from sunberry fruits restores the alkaline reaction of the blood, eliminates rheumatic and gouty phenomena and has diuretic properties.

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