Terpenoids in the green cuisine of Azerbaijan

Aliyeva Elmira Cherkez

1 Candidate of Chemical Sciences, Associate Professor, Associate Professor of the Department of Organic Chemistry; Baku State University; Republic of Azerbaijan

Abstract.
This article will provide information on the chemical composition and benefits of green plants and plants raw on the table, as well as green parts added to food. However, taking into account that the chemical composition of these plants is very rich and wide-ranging, in this article only isoprenoids (terpenes and terpenoids) are intended to show their effect on the body.

Keywords:
Azerbaijan; Isoprenoids; Essential oils; Coriander; Parsley; Menthol; Linalool; Camphene; Borneol; Farnesol
In Eastern countries, including Azerbaijan, spices are widely used in table food. The history of the use of these spices goes back hundreds of years before Christ. Currently, it is difficult to imagine an Azerbaijani table without coriander, parsley, kavar, "yellow root", saffron, ginger and other spices. The use of these spices not only gives aroma and pleasant taste to the dishes, but at the same time, these spices have healing properties and protect the people living in hot countries (south, east) from infectious diseases. The main ingredient of those spices are essential oils. One of the most common compounds found in essential menthol, linalool, camphene, borneol, farnesol oils and spices are isoprenoids, among which are and others. In addition to isoprenoids, flavones and flavonoids are widely distributed in those plants. This chapter talks about only a part of the spices that are widely used and important on the Azerbaijani table. Of these, preference was given to those growing in the territory of Azerbaijan. It should be noted that the chemical composition of plants widely used as spices depends greatly on the place where they grow, the climate, and the time of collection.

On the other hand, it should be taken into account that currently the world is paying attention to the "proper nutrition" lifestyle and the number of "vegetarian" people, that is, those who prefer only plant-based food without meat (more precisely, those who eat only plant products), is increasing. From this point of view, we will try to show the structure of beneficial compounds in plants, their effect on the body, and in what kind of processes these compounds participate in the body as part of any compound.

This article will provide information on the chemical composition and benefits of green plants and plants raw on the table, as well as green parts added to food.

However, taking into account that the chemical composition of these plants is very rich and wide-ranging, in this article only isoprenoids (terpenes and terpenoids) are intended to show their effect on the body.

Some representatives of green cuisine of Azerbaijan.
Anis. Essential oils contain menthol, linalool, flavones and flavonoids, quercetin, eugenol, tannins, glycosides.
There are $\alpha$-pinene, $\alpha$-phellandrene, dipentene, camphene.

Dill. The main component of essential oils obtained from seeds is isoprenoids: $D$-limonene, $D$-carvone, dihydrocarvone, $\alpha$-pinene, $\alpha$-phellandrene. The essential oil obtained from the stem and leaves is green in color. The composition of essential oils obtained from this part of the plant is slightly different from the composition of essential oils obtained from seeds. Here, the amount of carvone is reduced, the main composition is $D$-$\alpha$-phellandrene, besides, there are camphene, $\alpha$-pinene, myristicin, $n$-octyl alcohol.

Coriander. Oil of Coriander, Coriander Fruit Oil (Eng.), essence de coriandre B (Fran.), Corianderol, Corianderol (Alm.), Oleum Coriandri (Lat.). Chemical composition Coriander seed oil is rich in (+) linalool (65%) and its esters (linalool acetate 3-5%), besides geraniol and geraniolacetate (3%), camphor (4%), $\alpha$-terpineol, terpinen-4-ol, citronellol, nerol, borneol, nonanal, decenal, trans-2-tridesenal, anethole, osimene, dipentene, limonene, terpinolene, $\gamma$-terpinene, $\alpha$- and $\beta$-phellandrene, , $\alpha$- and $\beta$-pinene, thuyene, 3- includes carene, sabinene, p-tsylmol, dimethylstyrne and other components.

Coriander seeds are widely used in preserving Eastern sweets (nogul, lokum), some alcoholic beverages (liqueurs), meat and fish products.

In Azerbaijani folk medicine, coriander and coriander seeds are used in almost all dishes, salads, and as table herbs. It is known that this plant increases appetite, improves the stomach system, regulates the digestive process, etc. helps.

Parsley. Parsley, common name Petroselinum crispum (lat) is an annual or biennial cod from the umbelliferous family with dark green leaves, 50-80 cm tall. is a plant. Chemical composition Parsley leaves, stems, roots and seeds contain enough important and valuable substances. Parsley seeds contain essential oils: furocoumarin, berhaptene, flavone- apiin, as well as about 22% fatty acids (petroselin, olein, palmitic). The green part of parsley (leaf and stem) contains a number of vitamins: 0.2% ascorbic acid, then carotene, thiamin, riboflavin, retinol, nicotinic acid. It can be said that parsley, which is rich in vitamins, is superior to a
number of fruits and vegetables.

Tarkun. Tarragon is a widespread perennial herb. It grows in all countries of the world and is tolerant of both cold and hot climates. In Azerbaijan, tarragon is grown in all regions, and depending on the region where it is grown, tarragon differs in its unique taste and aroma. Chemical composition.

Its leaves and stem contain about 15% carotene (provitamin A), ascorbic acid (vitamin C), alkaloids, essential oils, flavonoids, coumarins. 65% sabinene, 10% myrcene, about 5% sesquiterpenes, ocimene, phellandrene, methylhavicol were found in essential oils.

A compound with two isomers belonging to cyclic monoterpenes: in the α-phellandrene molecule, the double bonds are located inside the ring (cyclohexadiene structure), in the β-phellandrene molecule, one of the double bonds is inside the ring, and the second forms the methylene group.

Tarragon increases appetite by increasing gastric juice, normalizes internal secretion glands. Tarragon's high content of carotene and carotenoids (as known, carotenoids are provitamin A) brings it back into the limelight. Tarragon is widely used as a food product in cooking, in the preparation of soft drinks, and in medicine. Oil is obtained from the green leaves of tarragon. Tarragon oil is widely used in cooking, medicine and cosmetics.

Basil grows wild in the countries of Iran, India, China, the Caucasus, and also in Azerbaijan. Chemical composition
The green part of the plant contains 1-1.5% essential oils, about 6% tannins, glycosides, saponins, ascorbic acid, sugar, P-vitamin, camphor, proteins, carotenoids and other compounds. Essential oils contain eugenol (about 70%), methyl havicol, cineol, linalool, camphor, osimen.

Origanum is a type of perennial herb. This plant has been used since ancient times as a spice, fragrance, and medicine. Origanum and its species are wild in southern countries. Currently, the plant is planted and cultivated in all countries. As you know, like many other plants, the substances contained in Origanum and their amount are different. Chemical composition. Origanum leaves and stems contain 0.3-0.5% essential oils. The new embryos of Origanum contain up to
0.13% rutin, carotene, ascorbic acid, pectin compounds, tannins, carbohydrates (pentoses). The amount and composition of essential oils depends on the different life cycle of the plant. The time when Origanum is rich in essential oils coincides with its flowering time. The essential oil contains isoprenoids: terpinene, sabinene, pinenes, α-terpineol, borneol. Apart from these, some phenols were found in the essential oils of Origanum.

Mint is a perennial herb. One type of mint is spearmint, which has a sharp aroma. Unlike watermelon, this plant is a water-loving plant. Its leaves and stem are very fragrant. Mint has been a decoration of the table of the Eastern countries since ancient times and was used to improve the taste of many dishes.

In Azerbaijan, thyme herb is used to prepare various teas (mixed with other herbs or pure), kebabs, and hot meat dishes.

More than 100 species of thyme grow in all territories of Azerbaijan. This plant differs in its useful substances depending on the place and time it was collected. For example, it is recommended to harvest thyme when it is blooming in early summer. Because the essential oils that give it benefits and a pleasant smell are found in the flowers and leaves.

In leaves and flowers of thyme 0.6-0.8% (the amount depends on the place where it grows and the time it is harvested) essential oils were found in the leaves and flowers of thyme. The main constituents of essential oils are thymol (30%), menthol, linalool and carvacrol. There is a small amount of triterpenes (general formula C30H48-triterpenes)
Laurel tree and bay leaf (lat. Láurus nóbilis) is an evergreen subtropical tree or shrub. A laurel tree lives and bears fruit for 100-400 years. Its leaves are used as a spice.

Laurel tree and bay leaf (lat. Láurus nóbilis) is an evergreen subtropical tree or shrub. A laurel tree lives and bears fruit for 100-400 years. Its leaves are used as a spice. The bay tree grows in subtropical climates. It is grown in almost all regions of Azerbaijan.

Chemical composition.
All parts of the plant (leaves, stems, buds and fruits) are rich in essential oils. In addition, its fruits contain tannins, resins and fatty acids, 25-45% vegetable oils, starch, phytosterol, sugars and a hydrocarbon called lauran.

References: