As adulterants for oil of rosemary, oil of camphor and fractions from oil of camphor originating from the safrol manufacture are frequently used; furthermore, oil of eucalyptus, eucalyptus terpenes as resulting from the manufacture of eucalyptol, oil of turpentine and terpinolene are also used. An adulterant frequently found in oil of rosemary is steam distilled American pine oil.

It is to be regretted that the Dalmatian distillers have not yet come to understand the changed situation in the production of oil of rosemary which during the last few years has shifted from Dalmatia to Spain. It is impossible to obtain prices for the Dalmatian oil greatly in excess of Spanish rosemary oils. The sooner the Dalmatian farmers come to realize this fact the better it will be for the revival of the Dalmatian rosemary industry.

Oil of Sage Dalmatian

The sage plant (*salvia officinalis*), broad-leaved and of greyish-silvery color, grows wild and abundant on the barren hillslopes of the Dalmatian Islands and the mainland coast. It attains a height of about two feet.

Harvest takes places from the end of July to September. Important producing centers are the island of Cherso which since 1918 belongs to Italy and the island of Veglia which now is part of Jugo-Slavia.

The production of oil of sage is of comparatively recent origin; before the war only very limited quantities were distilled and it therefore seems that this oil has come into prominence within comparatively few years.

Before 1914 not more than 300 to 500 kilos of oil of *salvia officinalis* per year were distilled in San Martino di Cherso; almost the total output was exported to Germany and practically nothing directly to the United States. At that time this oil was distilled on an almost experimental basis by some of the bigger Dalmatian distillers equipped with more modern apparatus. The intention then was rather to seek new oils aside from oil of rosemary. During the war the main distilling plant in San Martino di Cherso was taken over by the Austrian-Hungarian government and all the oil of *salvia officinalis* distilled (about 1600 kilos) was used in field hospitals. After the war, particularly during 1921 and 1922, a markedly higher demand for Dalmatian sage oil set in, the essential oil houses in Germany purchasing about 1500 kilos. During 1927-1928 the United States suddenly appeared on the market as a buyer of this oil and the exportation from Dalmatia to the United States reached about 5000 kilos whereas the demand on the part of Germany decreased considerably.

Since oil of sage demands a more careful distillation in modern stills this oil is now almost exclusively distilled in larger plants and practically not at all in primitive farmer stills.

In San Martino di Cherso alone about 2000 kilos were produced during the last few years. The plants are cut with sickles, carefully cleaned from adhering earth and stony material and transported on donkeys to the villages. After storage in barns for a few days the plants become somewhat dry and are then distilled.

The yield of oil at the beginning of the harvest might be as high as 2%. Toward the end of the harvest the oil yield decreases to about 0.7%; as an average yield 1.4% can be assumed.

Distillation is carried out with steam, one charge lasting about one hour. The pure oil is of a strong yet delicate, spicy flavor, truly representing the natural perfume of the plant.

A few samples of genuine Dalmatian sage oils showed the properties indicated in the table at the foot of this page.

The following constituents have been identified as occurring in Dalmatian oil of sage: d-β-thujone, l-α-thujone (main constituent), α-pinene, cineol, d-camphor, borneol, bornyl acetate.

Oil of sage Dalmatian as distilled from *salvia officinalis*, should not be confused with Spanish oil of sage which latter, distilled from *salvia triloba*, has an entirely different odor character and could by no means replace the Dalmatian oil, especially in flavor work. The Spanish oil reminds one of spike lavender and rosemary rather than of true *salvia officinalis*.

In case of insufficient demand for oil of sage Dalmatian to warrant distillation of larger quantities of oil, the plant material is further stored by the farmers, fully dried and exported as such. A clear distinction is then made of large, medium and small size leaves which latter are the poorest quality and likely to pulverize in transportation. Great quantities of this plant material are annually shipped to the United States where it serves in the packing industry as a flavoring ingredient. It is surprising that more oil of sage is not used in this industry since freight is saved by shipping the oil instead of the bulky plant material.

To give the full flavor value of the original plant, a concentrated, thick liquid extract of the salvia plant is sometimes used in conjunction with the corresponding essential oil. This plant extract is made by extracting the steam distilled plant material with hot water and by concentration of the watery extract. Twenty per cent yield of concentrated extract is usually obtained from the plant material.

Oil of Laurel Leaves

Oil of laurel leaves is distilled on some of the Dal-

	I	II	III	IV	V	VI
Spec. Grav. 15° C.:	0.917	0.916	0.918	0.919	0.918	0.919
Opt. Rot.:	+20°50′	+20°35′	+22°8′	+20°10′	+19°20′	+28°56′
Ref. Index 20°:	1.4589	1.4588	1.4604	1.4601	1.4600	1.4602
Est. Cont. (bornyl acetate):	3.1%	2.6%	3.1%	2.8%	3.1%	2.6%
Total Borneol:	10.7%	10.2%	11.0%	10.7%	10.7%	12.4%
Thujone Content:	59.9%	59.7%	56.4%	57.6%	57.4%	57.2%
Solubility:	Sol. 3.5/4 vol. & more 70% alcohol.	Sol. 3.5/4 vol. & more 70% alcohol.	Slightly opalescent in 5 vol. 70% alcohol; clear with more.			Sol. in 4.5 vol. & more 70% alcohol.