

## Tion – sulfines for Two Species of *Alliacee*

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### Editorial

As a component of garlic (*Allium sativum*) and onion (*Allium cepa*) distilled oil were isolated organosulphur compounds such are: diallyl disulphide; propenyl disulphide and allyl propyl disulphide. If the garlic cloves are frozen, pulverized and extracted with acetone, the extracts by evaporation contain residue and not any sulphur, thus indicating the absence of free sulphide in plants.

White powder of garlic had practically no odor, but with the addition of small quantities of water, typically garlic odor was detected and antibacterial principle of **allicin** isolated and extracted. This shows that neither **allicin** nor allyl sulphur from "garlic oil" are not presented in any type of garlic. When the powder was heated for 30 minutes with 95 % ethanol, there was no reaction to the addition of water the insoluble residue [1].

However, when a small amount (i.e. 1 mg/mL) of fresh garlic powder was added to the insoluble fraction of alcohol (20 mg/mL), the activity of the treated sample was found to be equal to that of the untreated powder. Treatment with ethanol 95% inactivated the necessary enzyme for the precursor cleavage, while addition of a small amount of enzyme resulted in normal cleavage [2].

Since a precise definition of "essential oil" is "a volatile substance contained in certain herbs that provide a distinctive odor of the plant" and it is known that volatile substances of *Allium* species are not found in plants, but resulting in cell breakdown plant, it is best to know the process that leads to a product derived from alliaceous plants, removing volatile components [3].

One way to classify different *Allium* species, it is by type of tion-sulfines alkyl groups or in a more realistic than the related compounds such as polysulfides. This type of chemo taxonomic information has been used to determine the relationships between different types of *Allium*. Only the Chinese chives presented a predominance of methyl groups, although all examined *Alliacee* plants containing such groups. Three of the plants examined, garlic, wild garlic clove and garlic with large alkyl allyl group is dominant. The only plant containing detectable amounts of allyl groups is Chinese chives. Propyl group presents major alkyl in the chives, shallots, leeks and is also present in onions. In disagreement with older publications [4,5], but according to Lawson's observations [6], propyl group is absent in garlic, wild garlic, garlic chives big Chinese cabbages, being present instead a 1-propenyl.

Even if all the plants containing group, 1-propenyl, it is dominant in the onion only.

Total percentage of 1-propenyl from tion-sulfines group of onion and bisulfide is misleading since the major part generated as 1-propensulfenic acid, will end as the lacrymogenic factor, which is not included in the calculations because the most part is lost during analysis. However, in an experiment using ether as the extraction solvent in the case of white onion, 0.5 mmol/g of lacrymogenic factor was isolated as compared to 0.2 mmol/g, total amount of thiosulfate. In some extracts were found small amount of bisulfides. Since the homogenates of the plants were kept 24 hours in menthol prior to

extraction and analyzed by chromatographic methods, were isolated other organo-sulfur compounds.

*Allium* homogenates prepared from peeled bulbs (garlic, wild garlic, large cabbages, onions, shallots) or from clean plants such as leeks, chives, Chinese chives, roots and the ends were removed, were stored at room temperature for 30 minutes, then analyzed by rapid extraction and concentration [7]. Analytical results were not changed after increasing the time between homogenization and extraction in 6 hours. When homogenates were kept overnight at room temperature, the only significant change was the disappearance of MeCH=CHS(O) SR type of tion-sulfines. In terms of quantitative analysis, there is some variation between the different extraction methods [8]. Organoleptic assessment of distillates by steam distillation of onions at room temperature shows that intensifies the taste and smell compared to smell freshly cut plants. From the point of view of plant specimens, the situation is ambiguous. The relative percentage of the various alkyl groups may vary depending on the plant (for example, Chinese chives, methyl report allyl, ranges from 71:29 to 36:64, in leaves, roots and rhizomes), depending on the variety of plant (for example, yellow onion, white or red), depending on the stage of development and on the growth and storage conditions [9].

Regarding plant samples, they exhibit variations in percentages of the methyl group. Two of the best known species of this class of plants contains (Figures 1 and 2):

### Final Remarks

In the years following the discovery of allicin, many advances have been made in identifying unusual organosulphur compounds are formed when onions or garlic are cut and clarify their origin. Despite this progress, there remain many other compounds that must be identified in extracts *Alliacee*. To answer the question how we can benefit from a diet with plants *Alliacee*, we can formulate the following recommendations:

-The tissue of *Alliacee* spp. is not completely crushed when eaten, thus allowing a significant part of S-alchenilcysteine S-oxide, such as allyl cysteine, allicin, and allyl disulfide to pass unchanged gastrointestinal tract. Because allicinase are irreversibly inactivated by the pH of the gastric juice, intestinal bacteria cleave the sulfoxide to the corresponding disulfides.

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