

Diallyl disulfide

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Diallyl disulfide (**DADS** or **4,5-dithia-1,7-octadiene**) is an [organosulfur compound](#) derived from [garlic](#) and a few other genus *Allium* plants.^[3] Along with [diallyl trisulfide](#) and diallyl tetrasulfide, it is one of the principal components of the [distilled oil](#) of [garlic](#). It is a yellowish liquid which is insoluble in water and has a strong garlic odor. It is produced during the decomposition of [allicin](#), which is released upon crushing [garlic](#) and other plants of the family [Alliaceae](#). Diallyl disulfide has many of the health benefits of garlic, but it is also an [allergen](#) causing [garlic allergy](#). Highly diluted, it is used as a flavoring in [food](#). It decomposes in the human body into other compounds such as [allyl methyl sulfide](#).

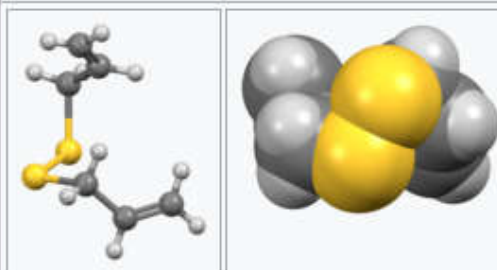
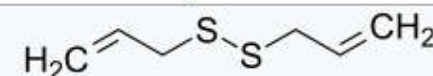
History [edit]

In 1844, [Theodor Wertheim](#) separated by [steam distillation](#) a pungent-smelling substance from garlic and named it "allyl sulfur." However, only in 1892 could [Friedrich Wilhelm Semmler](#) identify diallyl disulfide as one of the components of distilled [garlic oil](#). The natural precursor of diallyl disulfide, [allicin](#), was discovered in 1944 by [Chester J. Cavallito](#) and John Hays Bailey. In 1947, A. Stoll and E. Seebeck found that [allicin](#) in turn can be produced from the [cysteine](#) derivative [alliin](#) using the enzyme [alliinase](#).^{[3][4]}

Occurrence [edit]

Diallyl disulfide and trisulfide are produced by decomposition of [allicin](#), which is released upon breaking the cells of the [Alliaceae](#) plants, especially [garlic](#). The diallyl disulfide yield is the highest for the [steam distillation](#) of garlic bulbs which contain about 2 wt.% of diallyl disulfide-rich oil. Diallyl disulfide can also be extracted from garlic leaves, but their oil content is significantly lower at 0.06 wt.%.^{[5][6]}

Diallyl disulfide



Names

Preferred IUPAC name

3-[(Prop-2-en-1-yl)disulfanyl]prop-1-ene

Other names

Diallyl disulfide
 Garlicin
 1,2-Diallyldisulfane (not recommended)
 4,5-Dithia-1,7-octadiene

Identifiers

CAS Number	2179-57-9
3D model (JSmol)	Interactive image
Beilstein Reference	1699241