

BIOGENIC AMINES IN WINES

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Biogenic amines are biogenic substances with one or more amine groups which are basic nitrogenous compounds formed mainly by decarboxylation of amino acids or by amination and transamination of aldehydes and ketones. They can be detected in both raw and processed foods and in food microbiology they have sometimes been related to spoilage and fermentation processes. The main requirements for the formation of biogenic amines are, availability of free amino acids, presence of decarboxylase-positive microorganisms and conditions that allow bacterial growth and decarboxylase synthesis and activity. In winemaking, low levels of biogenic amines have been traced back to the vineyards. Multiple researchers have observed putrescine, ethanolamine and ethylamine in the grapes themselves with levels varying between varieties and from vintage to vintage. Levels of biogenic amines generally do not increase during primary fermentation, but can begin to increase during malolactic fermentation. The greatest increase in biogenic amines is usually observed during the aging process. They can be formed at high levels by the activity of certain bacteria. In particular, the members of the lactic acid bacteria genera *Lactobacillus*, *Pediococcus* and *Oenococcus* have been implicated. Histamine, methylamine, ethylamine, tyramine, phenylethylamine, putrescine, cadaverine are the mainly determined biogenic amines in wines. These compounds have negative effects not only for sensory properties but also human health.

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