

**POLYPHENOL AND VOLATILE COMPOUNDS IN
KIWIFRUIT (*ACTINIDIA DELICIOSA*)
BALSAMIC VINEGAR.**

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The kiwifruit is the edible berry of several *Actinidia* species. Kiwifruit contains high amounts of anti-oxidants beneficial to health. The main component of vinegar is acetic acid, which gives vinegar its sour taste and pungent smell.

Additional components in vinegar include other organic acids, amino acids, peptides, vitamins, mineral salts, and polyphenolic compounds (e.g., catechin, caffeic, ferulic acid). In recent decades, there has been increasing interest in the metabolic effects of vinegar. The majority of clinical studies have demonstrated that vinegar/acetic acid can beneficially affect glucose metabolism in healthy subjects and in patients with insulin resistance or diabetes mellitus. Vinegar has also been shown to protect from lipid accumulation in liver and skeletal muscle (Nutrition Reviews®). There is some evidence supporting the favorable effects of vinegar on cardiovascular risk factors, such as hyperglycemia, hyperinsulinemia, hyperlipidemia, and obesity. Kiwi balsamic vinegar 3 years old (glass barrel aged) and 8 years old (aged in oak barrels) (Patent RM2014A000521) were analysed by HPLC/DAD, HPLC-MS/TOF, GC-MS and 2DGC-MS/TOF. HPLC/MS analysis showed the presence of gallic acid with a quasi molecular ion m/z 169 $[M-H]^-$ and protocatechic acid with m/z 153 $[M-H]^-$.

A peak showing a quasi molecular ion m/z 109 $[M-H]^-$ was hypnotized to be a dihydroxybenzene. Quantitative data, determined at 280 nm using gallic acid as reference compound, evidenced an higher content of secondary metabolites in the 8 years old vinegar (1146.1 mg/L) respect to the 3 years old (330.2 mg/L). It is worth noting that the 3 years old sample showed the higher number of volatile compounds (VOCs). In particular alcohols, ketones, aldehydes, acids, esters, heterocyclic compounds, phenols and compounds with a furanic group are present.

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