The volatile fraction composition of commercially produced Citrus oils was object of this work by using GC/MS. More than fifty components were detected in the oils using their mass spectra and total ionization indices. The monoterpenes limonene was the most abundant component even though nerolidol is usually expected for Citrus essential oils. Monoterpenes followed by oxygenated and aldehydes were the other components in the separated fraction. Aldehydes were the major oxygenated components in the sweet orange oil whereas d-citronellol and linalool were present in higher amounts in the bitter orange oil. Among them, linalool, decanol and linalool are the most important components for the flavor of sweet orange oil and carvacrol is the most important for bitter orange oil in combination with the other components. The amount of camphor gives a good indication about the freshness of the oil and the quantities of α-pinene and β-pinene, sabinene and myrcene give an indication about the natural or artificially changed composition of the essential oils.

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