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## An innovative dynamic headspace collection technique (HSCD) for outdoor use and suitable for quantitative odor comparison

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Volatile organic compounds (VOCs) emitted by insect pests or infected plants are usually present in low concentrations. Numerous collection techniques for VOCs have been developed in recent decades. All these different techniques have their limitations. The flow in dynamic headspace collection systems is influenced by internal and external factors. Especially in field experiments, it is important to measure comparable samples at the same time to avoid distortions due to temperature fluctuations during the day or changing intensity of solar radiation due to e.g. clouds between the VOC collections of different samples. The attempt to collect relevant VOCs in qualitatively and, in particular, quantitatively comparable ratios has led us to develop an innovative dynamic headspace collection device (HSCD). It is a derivative of two prototypes we described earlier. The technical features of the device are presented in detail. It was produced as a small series as part of the PurPest project (European Commission, 2023).

The HSCD possesses six parallel mounted odor collection systems, each consisting of a suction pump coupled to a digital mass flow controller (range: 0.1 to 1 l/min). It has two sampling modes, the open loop sampling (OLS) and the closed loop sampling (CLS) mode. Ambient temperature and relative humidity are monitored during the sampling of VOCs and stored together with flow data on a USB-stick. All components are mounted in a trolley suitcase for mobility of the system.

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