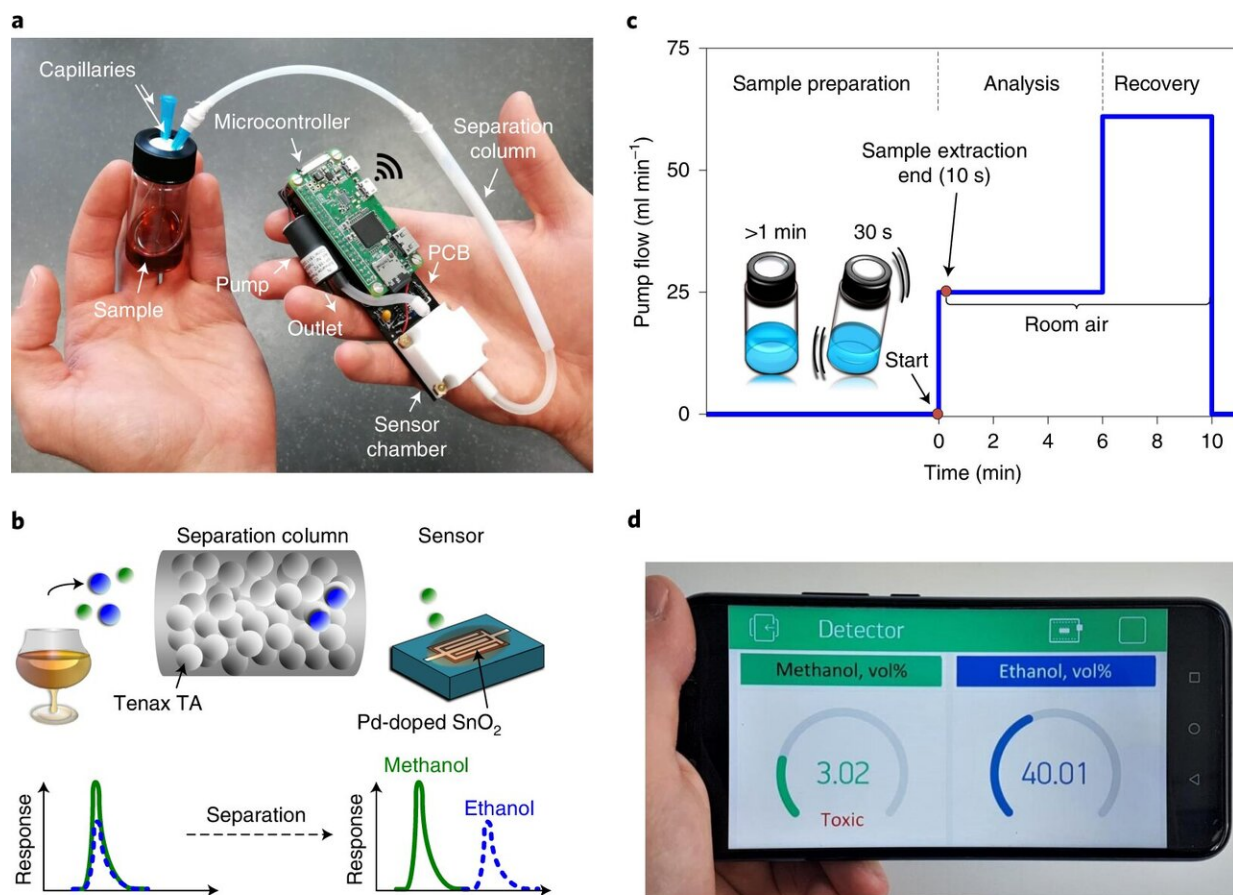


Portable smartphone add-on can measure methanol in alcoholic beverages

June 16 2020, by Bob Yirka



Analyser design. a, The handheld analyser during measurement. b, A schematic of the detection concept. c, The sampling and analysis procedure. d, The tailor-made app to visualize results on a smartphone transmitted through a wireless local area network. PCB, printed circuit board; Pd, palladium. Credit: *Nature Food* (2020). DOI: 10.1038/s43016-020-0095-9

A team of researchers and engineers from Particle Technology Laboratory, ETH Zurich and University Hospital Zurich has designed and built a palm-sized device that can measure the amount of methanol in an alcoholic beverage. In their paper published in the journal *Nature Food*, the researchers describe their device, how it works and how well it performed when tested.

In the western world, [methanol](#) poisoning is a rare occurrence—up to 90 percent of such accidents occur in Asia. Methanol poisoning can cause illness and even death—last year, 789 people around the world died after unknowingly ingesting the poison. Methanol is a colorless, toxic, volatile flammable liquid alcohol, though low concentrations are generally considered to be harmless. Poisonings are usually the result of alcoholic beverage manufacturers attempting increase the potency of drinks at very little cost. Such beverages can be distributed and sold through local outlets, and customers have little ability to test them—the current standard involves lab testing.

Methanol can wind up in [alcoholic beverages](#) in other ways—improper storage, for example, or incorrectly brewed or distilled beverages. It has also been known to build up to [toxic levels](#) in homemade fruit-based spirits. It was also in the news recently, as approximately 1000 people became ill after drinking methanol as a coronavirus remedy in Iran—300 of them died.

In this new effort, the researchers designed a palm-sized [device](#) that measures both the methanol and ethanol levels in a single beverage. The device is placed on a drinking glass after the beverage has been poured. It extracts a small amount of air from the glass, which contains evaporated methanol and ethanol. The device sends the data to a smartphone with an associated app that displays the levels of methanol and ethanol in the drink. It also displays a warning if the level is over a certain threshold.

The researchers suggest their device could prove useful for drinkers of cheap alcohol-based beverages, for police agencies, or even emergency medical workers—they note that the device can also be used to measure the amount of methanol a person has consumed by measuring breath samples.

More information: Sebastian Abegg et al. A pocket-sized device enables detection of methanol adulteration in alcoholic beverages, *Nature Food* (2020). [DOI: 10.1038/s43016-020-0095-9](https://doi.org/10.1038/s43016-020-0095-9)

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