

Artificial 'tongue' can distinguish between whiskies

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Credit: University of Glasgow

Scientists revealed Tuesday they have come up with an artificial "tongue" which can distinguish subtle differences between whiskies.

Experts at the University of Glasgow have built the miniature taster which can even tell the difference between the same brand aged in different barrels, with more than 99 percent accuracy.

It can also distinguish between whiskies aged 12, 15 and 18 years.

The technology can identify a host of different chemicals within a complex mixture.

It could be used not only for quality control but also to combat the booming counterfeit alcohol trade: the method found several hugely expensive bottles of whisky to be fake.

"We call this an artificial tongue because it acts similarly to a human tongue," said Alasdair Clark, of the University of Glasgow's School of Engineering.

"Like us, it can't identify the individual chemicals which make coffee taste different to apple juice but it can easily tell the difference between these complex chemical mixtures."

Whisky is poured over a chequerboard pattern of tiny pieces of gold and aluminium—which act as "tastebuds"—and researchers then measure how they absorb light while submerged.

Slight changes of colour in the gold and aluminium pieces are measured to build up a statistical profile for each of the samples tested.

"In addition to its obvious potential for use in identifying counterfeit alcohols, it could be used in food safety testing, quality control, security—really any area where a portable, reusable method of tasting would be useful."

The valuation and consultancy service Rare Whisky 101 found last year in laboratory tests that of 55 "rare" Scotch whiskies bought on the secondary market, 21 were discovered to be fake.

The 21 bottles collectively could have been valued at around £635,000 (\$775,000, 692,000 euros), had they been genuine.

Annabel Meikle, director of the Keepers of the Quaich, a society of whisky experts, said the industry would welcome the technology.

"We really, as an industry, would welcome something which would help to stamp out the counterfeit whisky," she told BBC radio.

"I don't think the master blenders are going to be quaking in their boots but really quite grateful."

Meikle said she could identify counterfeit whisky by taste but the technology could be used to replace some of the vast amount of routine human taste checking.

The paper, titled "Whisky tasting using a bimetallic nanoplasmonic [tongue](#)," is published in *Nanoscale*.

More information: Gerard Macias et al. Whisky tasting using a bimetallic nanoplasmonic tongue, *Nanoscale* (2019). [DOI: 10.1039/C9NR04583J](#)

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