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[\[BioTech\] Research Team Unveils Air Substance Density Device](#)

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Taipei Times (2012/07/19) A research team from National Taiwan Normal University (NTNU) July 18 unveiled a quantitative detection technique that can instantly determine the density of various substances in the air by analyzing the changes in frequency when air is blown through a tiny whistle.

Cheng-huang LIN (林震煌), a professor at the university's department of chemistry, said that with the new detection method invented by his research team, rapid screening for diabetes by measuring acetone levels in breath could become possible in the near future.

The research project, funded by the National Science Council, is the first in the world to use the analysis of sound frequency to determine gas composition and its density, LIN said, adding that the new technique obviates the need for a calibration curve to determine the quantity of substances, as is used in the most common techniques currently available.

Compared with current common techniques for gas detection through chemical principles, the new technique's detection principle comes from physics — by applying a specially designed whistle after the process of gas chromatography (separation of the different components in the gas) and analyzing the various sound frequencies created as the substances are blown through the whistle, LIN said.

LIN said the team was cooperating with other research teams, especially on the development of a household medical device to detect acetone levels in a person's breath — which is likely to be a fast screening method for diabetic ketoacidosis.

By blowing air into the device and waiting for a few minutes for the analysis, users can easily detect acetone levels in their breath, he said.

LIN added that the team hopes to make the device easy to operate and available in the handy size of an iPad, so that it can be used for daily health monitoring.

Reference:

[Taipei Times 2012/07/19](#)

[National Science Council International Cooperation Sci-Tech Newsbrief](#)

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