

Environmental Technologies: Non-targeted chemical analysis using GC-MS

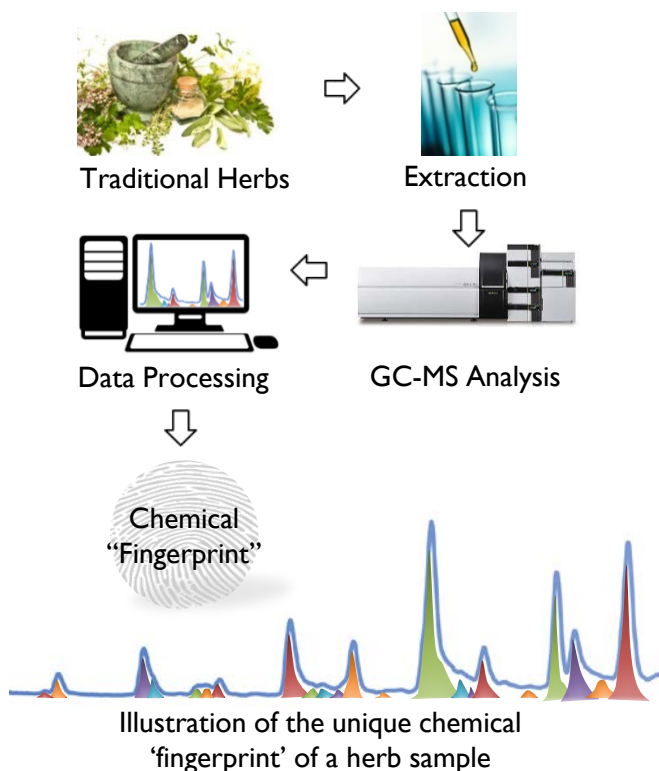
The Challenge

Trace and comprehensive analysis of complex compounds have traditionally been complicated and time-consuming. This is partly due to the tedious sample preparation and data collection process.

The Solution

A team of IMRE scientists, in collaboration with a Singapore company, ChemoPower Technology, developed a non-targeted chemical analysis protocol based on gas chromatography (GC) and mass spectrometry (MS).

The IMRE GC-MS protocol involves optimised sample preparations and analysis parameters to achieve rapid and accurate non-targeted chemical analysis of complex mixtures. Such analyses can be used to provide authentication, quality and safety solutions for companies that use naturally occurring substances, such as traditional herbs, in their products.



Key Features

- Reduction of more than 10 times in cost and time compared with existing chromatography technology.
- Simpler sample preparation and analysis procedure as the GC-MS protocol has a higher tolerance to sample conditions compared with current methods.
- More than 100 unknown compounds can be identified in a single protocol run.
- More accurate analysis of trace and co-eluted compounds down to ppb level compared with market standards and traditional methods.

Potential Applications

- Identify, trace and grade traditional medicine herbs and products in the traditional medicine industry.
- Test for trace compounds to ensure food safety and quality control in the food & beverages industry.
- Conduct research and development in pharmaceuticals.

Collaboration Opportunities

- Collaborate with manufacturers and distributors of traditional medicine products and health supplements in further research and development and testing.
- Work with authorities such as Agri-Food and Veterinary Authority of Singapore (AVA) and Health Sciences Authority (HSA) to develop solutions that help in the enforcement of comprehensive quality and safety standards and testing.



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