DETERMINATION OF *Ganoderma* VOLATILE ORGANIC COMPOUNDS IN OIL PALM

NUSAIBAH, S A; IDRIS, A S; SITI NOR AKMAR, A* and SARIAH, M*

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MPOB INFORMATION SERIES • ISSN 1511-7871 • JUNE 2013 MPOB TS No. 120

The discovery of patterns and specific volatile organic compounds (VOC) associated with *Ganoderma* infection could be the key for early detection of this disease. This could facilitate the detection of *Ganoderma* in the plantation environment or host. Three VOC produced by pathogenic *Ganoderma* were identified [2-Furan-carboxaldehyde, 5-(hydroxymethyl)-, Thiophene, 2-propyl- and 4H-Pyran-4-one] and selected as potential biomarkers.

OBJECTIVE

To detect *Ganoderma* disease through *Ganoderma* biochemical markers.

METHODOLOGY

A summary of the methodology for the determination of *Ganoderma* biomarkers in oil palm tissues are presented in *Figures 1*, *2* and *3*.

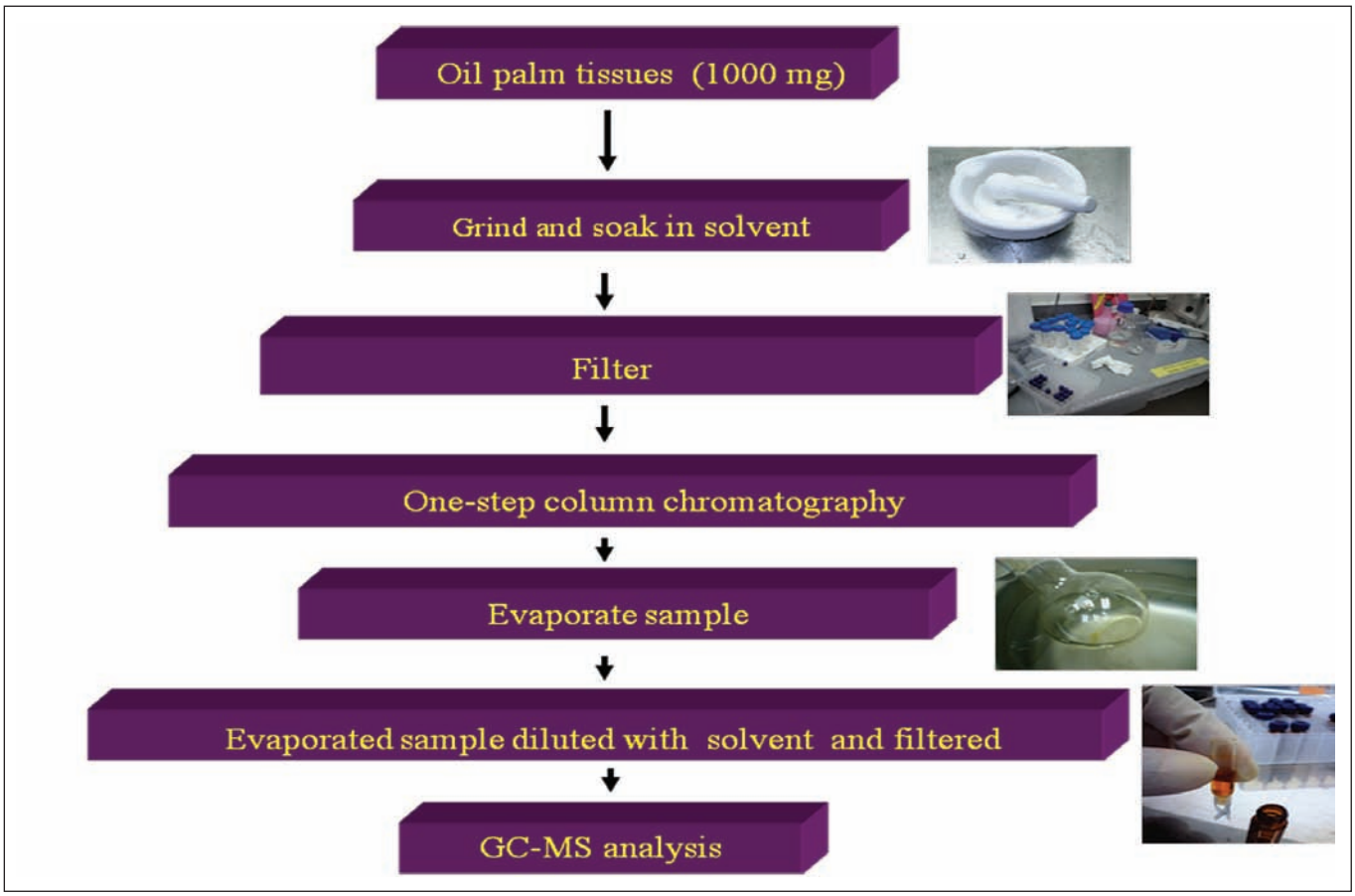

Figure 1. Methodology for the determination of volatile organic compounds from Ganoderma *biomarkers in oil palm tissues.*

*Institute of Tropical Agriculture, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor.

ISSN 1511-7871
9 771511 787001
Malaysian Palm Oil Board, Ministry of Plantation Industries and Commodities, Malaysia
P. O. Box 10620, 50720 Kuala Lumpur, Malaysia. Tel: 03-8769 4400 Fax: 03-8925 9446 Website: www.mpob.gov.my
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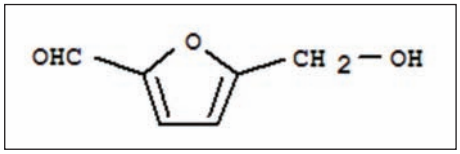
Figure 2. Gas chromatography-mass spectrometry (GC-MS) for volatile organic compound (VOC) analysis.

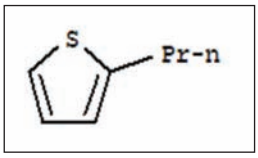
Figure 3. Extracts of oil palm root tissues.

SERVICES OFFERED

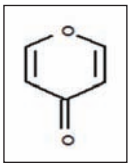
Determination of VOC of *Ganoderma* disease (*Figure 4*) present in oil palm tissues.



2-Furancarboxaldehyde, 5-(hydroxymethyl)-



Thiophene, 2-propyl-



4H-Pyran-4-one

Figure 4. Three volatile organic compounds (VOC) identified as biomarkers of Ganoderma *disease in oil palm.*

A method to detect VOC in oil palm due to *Ganoderma* infection was developed. Three VOC were identified as biomarkers for *Ganoderma* disease, namely 2-Furancarboxaldehyde, 5-(hydroxymethyl)-, Thiophene, 2-propyl- and 4H-Pyran-4-one.

For more information, kindly contact:

Director-General
MPOB
P. O. Box 10620
50720 Kuala Lumpur, Malaysia.
Tel: 03-8769 4400
Fax: 03-8925 9446
www.mpob.gov.my