

# DETERMINATION OF HEXACONAZOLE IN AN OIL MATRIX (crude palm oil)

ABDUL NIEFAIZAL ABDUL HAMMID; AINIE KUNTOM; IDRIS ABU SEMAN and RABEAH HUSSEIN



MPOB INFORMATION SERIES • ISSN 1511-7871 • JUNE 2009

MPOB TS No. 72

## MAIN OBJECTIVE

To develop a method for the determination of hexaconazole in an oil matrix.

## EXPECTED BENEFITS

This method can be used to provide key information on the level of hexaconazole in crude palm oil (CPO).

## INTRODUCTION

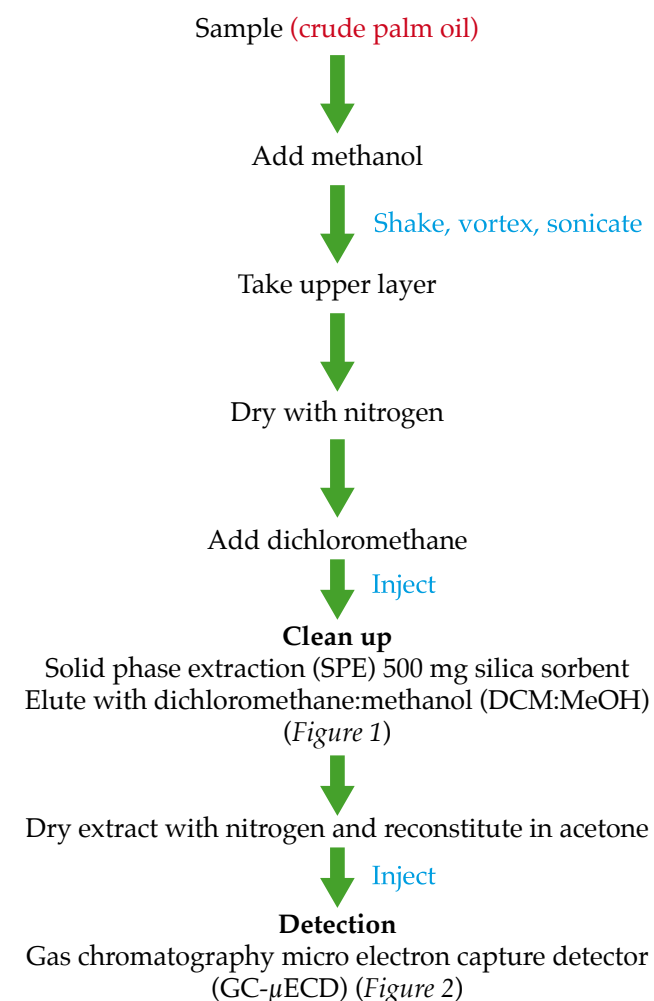
Hexaconazole is a systemic fungicide widely used to control fungal pathogens in a variety of crops (Paredes and Munnoz, 2002).

In Malaysia, hexaconazole is used to inhibit the spread of *Ganoderma* infection from infected oil palm (Idris *et al.*, 2004). *Ganoderma* can cause the disease basal stem rot (BSR) in oil palm and the spreading of the infection, if not prevented, will destroy the oil palm.

It is important to measure the level of hexaconazole in crude palm oil because of its toxic effects on human. The research began with the development of a method to determine the level of hexaconazole in samples of oil.

## METHOD

The following flow chart shows the method for hexaconazole determination:



## RESULTS

### Calibration Curve

A calibration curve was prepared using 0.2, 0.4, 0.8 and 1.0 mg litre<sup>-1</sup> standard solutions of hexaconazole in acetone.





Figure 1. Picture of solid phase extraction.



Figure 2. GC-μECD set-up.

The calibration was linear with a correlation coefficient of  $\pm 0.994$  (Figure 3).

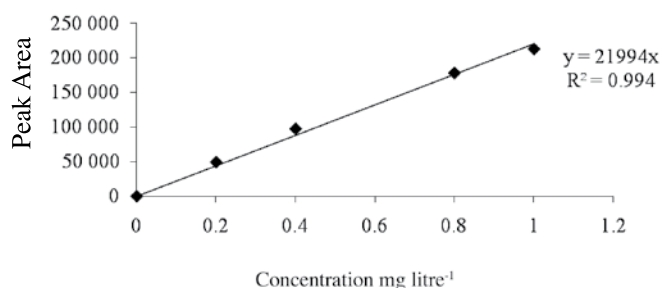


Figure 3. Calibration curve showing a linear relationship between concentration of hexaconazole with peak area.

### Recovery Study

Recovery of standard hexaconazole at concentrations of 0.2, 0.5 and 1.0 mg litre<sup>-1</sup> was 58%, 77% and 62%, respectively.

Limit of quantification (LOQ) : 0.2 mg kg<sup>-1</sup>.

Limit of determination (LOD) : 0.06 mg kg<sup>-1</sup>.

### CONCLUSION

This procedure is proposed as one of the methods for the determination of hexaconazole in crude palm oil.

### REFERENCES

PAREDES, B S G and MUNNOZ, F R (2002). Effect of different fungicides in the control of *Colletotrichum acutatum*, causal agent of anthracnose crown rot in strawberry plants. *Crop. Prot.*, 21: 11-15.

IDRIS, A S; ISMAIL, S; ARIFFIN, D and AHMAD, H (2004). Prolonging the productive life of *Ganoderma*-infected palms with hexaconazole. *MPOB Information Series*.

For more information kindly contact:

Director-General  
MPOB  
P. O. Box 10620  
50720 Kuala Lumpur, Malaysia.  
Tel: 03-87694400  
Website: [www.mpob.gov.my](http://www.mpob.gov.my)  
Telefax: 03-89259446