ACYLATION OF SOME FUROCOUMARIN DERIVATIVES

Orchidee H. Hishmat and Sally S. E.-D. El-Nakkady

Natural Products Department, National Research Centre, Dokki, Egypt

The acetylation of furocoumarins was investigated. Thus Friedel-Craft acetylation of xanthotoxin leads to the formation of 4-acetylxanthotoxin which forms the corresponding chalcones.

On the other hand, acetylation of 5-hydroxyisopimpinellin gives 3-acetyl-4-hydroxy-5-acetoxyxanthotoxin (with 2 moles of acetyl chloride), thus indicating that demethylation occurred at the 4-position. If however, excess acetyl chloride is used 3-acetyl-4,5-diacetoxyxanthotoxin is produced. The latter product was also obtained by subjecting 5-acetoxyisopimpinellin to the Friedel-Craft's condition (using excess acetyl chloride).

In a similar manner, Friedel-Craft acetylation of 5-hydroxybergapten yielded 3-acetyl-4-hydroxy-5-acetoxypsoralene (with 2 moles of acetyl chloride).

However, acetylation of 5-methoxyisopimpinellin using excess acetyl chloride led to 3-acetyl-4,5-diacetoxyxanthotoxin, via demethylation of the methoxy groups at positions 4 and 5, followed by acylation.

The structures proposed were characterized by N.M.R. and mass spectra.