

Methods for Glucosinolate Analysis

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Measurement of the glucosinolate content of rapeseed has become of considerable economic importance with the payment of a premium for low glucosinolate crops.

High Performance Liquid Chromatography (HPLC) is technically perhaps the best method for glucosinolate analysis and will become the EC Reference Method for 1991. However, because it is a relatively complex and lengthy procedure, HPLC is quite unsuitable for rapid, routine analysis, eg for trading purposes. The EC has thus allowed the use of national or registered methods. X-ray fluorescence spectrometry (XRF) has been a national method in the UK since 1988. It is an indirect method, which requires calibration before use. The original UK calibration set consisted of four rapeseed samples of known glucosinolate content. This set was increased to eight samples for 1989/90.

XRF has become so widely used and accepted that the International Standards Organisation (ISO) are in the process of producing a standard international protocol. At the same time, the Community Bureau of Reference (BCR) is making available a set of three samples for calibration. Future calibration will be based on total sulphur rather than glucosinolate content, in conjunction with appropriate equations to convert sulphur levels to glucosinolates. This will help to solve problems arising with the measurement of low (< 10 μ moles) glucosinolate samples and will also enable all users of XRF within the EC to utilise the same calibration.

A UK XRF Users Group has been established and anyone requiring further information should contact Mr. Jonathan White, NIAB, Cambridge CB3 0LE, U.K.