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Short communication

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Adam Le Gresley, Jean-Marie R. Peron

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**A semi-automatic approach to the characterisation of dark chocolate by Nuclear Magnetic Resonance and multivariate analysis.**

Adam LE GRESLEY<sup>a\*</sup> and Jean-Marie R.PERON<sup>a</sup>

<sup>a</sup>Department of Chemistry and Pharmaceutical Sciences, SEC Faculty, Kingston University, Kingston-upon-Thames, Surrey, KT1 2EE, UK.

\*Corresponding author:

Dr Adam Le Gresley, Tel + 44 (0)20 84177432 Email: a.legresley@kingston.ac.uk

**Abstract**

Tracing the geographical origin of chocolate is of increasing importance owing to the market growth of cocoa products of high quality and especially where value is derived from those products being of single origin. The NMR analysis of methanolic/aqueous extracts of dark chocolate samples from Peru, Venezuela and Madagascar is reported and 42 different chemical constituents are identified, quantified and analysed using multivariate techniques. This paper describes a simple non-destructive protocol, which look at the chemical profile for chocolate samples from these three geographical locations and demonstrates potential for assessing the provenance of chocolate products, which has implications in food quality, safety and authenticity.

**Introduction**

Determining the geographical origin of foods is a challenge with implications for food authenticity, especially when the existence of high-value products belonging to

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