

Analytical challenges in developing an automated quality control methods to detect smoky off-odor in cocoa beans

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Abstract

Climate change is heavily conditioning the productions of cocoa affecting the yield, the pod and bean characteristics. The climate in a cocoa growing area will also influences the choice of the methods of drying and may have some effect on storage. This has repercussion on the flavour quality of the finished chocolate [1]. Chocolate manufacturing therefore need informative, practical and cost-effective tools to identify off-flavour in evaluating the quality of the in-coming raw material in routine control. Analytical techniques and their improvement coupled with chemometric methods enables to speeding-up the chemical characterization and the definition of quality marker and are more transferable in routine process [2]. A top-down approach was carried out. Starting from a screening with the highly informative analytical investigation by HS-SPME-GCxGC-ToF-MS, this study deals with the development of a fully automatic analytical method by HS-SPME-GC-MS more suitable for routine control exploring the power in the chemical information provided from them to distinguish the quality of cocoa flavour from to defective one in incoming cocoa raw material. Since target off-flavour compounds identified in the above procedure are present at trace level and because of the high retention from the matrix resulting from their chemical-physical characteristics, a careful and challenging set-up of the analytical approaches were tested in order to improve the extraction of these compounds from the cocoa beans [3-4].

References

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