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Classical and novel approaches to the analysis of honey and detection of adulterants

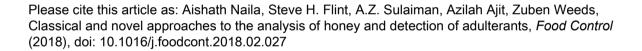
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- 1 Classical and novel approaches to the analysis of honey and detection of adulterants
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- 10 Abstract
- Honey is an extract of floral and secretions from a variety of bees. Some honey manufactures
- adulterate pure honey with industrial sugar, chemicals, and water either directly or indirectly.
- 13 Many methods have been developed to detect honey adulterants including physicochemical
- 14 analysis, microscopy, chromatography, immunoassay, thixotropicity, DNA metabarcoding,
- sensors, and spectroscopy. However, the most promising methods for the development of a
- portable test kit for honey adulterant detection are ELISA, electronic tongue, and NIR. The most
- sensitive and accurate method is NIR. These methods have shown satisfactory results when used
- individually or combined. Further research is still required to trial different combinations of
- 19 methods to improve accuracy and the ability to detecting a wide variety of adulterants
- simultaneously. There is a need to develop a portable honey adulterant detection method, such as
- 21 NIR spectroscopy using a smartphone.
- 22 Keywords: Honey, stingless bee honey, adulterants, portable honey adulterant kit, NIR
- 23 spectroscopy, smart phone, electronic tongue

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