Rapid and automatic chemical identification of the medicinal flower buds of Lonicera plants by the benchtop and hand-held Fourier transform infrared spectroscopy

Jianbo Chen, Baolin Guo, Rui Yan, Suqin Sun, Qun Zhou

PII: S1386-1425(17)30257-3
DOI: doi: 10.1016/j.saa.2017.03.070
Reference: SAA 15049

To appear in: *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*

Received date: 6 September 2016
Revised date: 21 March 2017
Accepted date: 30 March 2017

Please cite this article as: Jianbo Chen, Baolin Guo, Rui Yan, Suqin Sun, Qun Zhou , Rapid and automatic chemical identification of the medicinal flower buds of Lonicera plants by the benchtop and hand-held Fourier transform infrared spectroscopy. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Saa(2017), doi: 10.1016/j.saa.2017.03.070

Rapid and automatic chemical identification of the medicinal flower buds of *Lonicera* plants by the benchtop and hand-held Fourier transform infrared spectroscopy

Jianbo Chen[1,*], Baolin Guo[2,*], Rui Yan[2], Suqin Sun[3], Qun Zhou[3]

[1] *School of Life Sciences, Beijing University of Chinese Medicine, Beijing 100029, China*

[2] *Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100193, China*

[3] *Key Laboratory of Bioorganic Phosphorus Chemistry & Chemical Biology (Ministry of Education), Department of Chemistry, Tsinghua University, Beijing 100084, China*

Abstract

With the utilization of the hand-held equipment, Fourier transform infrared (FT-IR) spectroscopy is a promising analytical technique to minimize the time cost for the chemical identification of herbal materials. This research examines the feasibility of the hand-held FT-IR spectrometer for the on-site testing of herbal materials, using Lonicerae Japonicae Flos (LJF) and Lonicerae Flos (LF) as examples. Correlation-based linear discriminant models for LJF and LF are established based on the benchtop and hand-held FT-IR instruments. The benchtop FT-IR models can exactly recognize all articles of LJF and LF. Although a few LF articles are misjudged at the sub-class level, the hand-held FT-IR models are able to exactly discriminate LJF and LF. As a direct and

* Corresponding authors. E-mail: chenjianbo@bucm.edu.cn (J. Chen), guobaolin010@163.com (B. Guo)