Study on Analysis Method for Gardenia jasminoides Components by Near Infrared Spectroscopy

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ABSTRACT

This research carries on the traditional chemistry composition analysis to the Gardenia jasminoides Ellis, include the ingredient such as the total sugar , the total polyphenol and geniposide by the near infrared spectroscopy（NIRS）technique and establishment the Gardenia jasminoides Ellis composition analytical calibration curves . Two scanning styles （Reflectance and Transimittance）of NIRS are applied to the the Gardenia jasminoides Ellis （including 168 kinds of Gardenia jasminoides Ellis solution and 129 kinds of Gardenia jasminoides Ellis powders ）for rapidly determine compositions. The results were summarized as fllows： 1. From the results of fresh stem、leaf and the fruit part by statistics methods , the total sugar ingredient was dried by hot air with August ’ leaf of water extract at most ; the total phenol ingredient is most for content that the leaf part of August was extracted by ethanol , methyl alcohol of hot air drying and the geniposide then dries by hot air the content that extract by ethanol , methyl alcohol of hot air drying with the fruit part of December at most . 2. the all of Gardenia jasminoides Ellis sample in total sugar content ranged from 6.9 mg /g to 76.118 mg /g ; the total phenol content ranged from 0 mg /g to 12.637 mg /g；the geniposides content ranged from 0.065 mg /g to 237.05 mg /g .The results showed the great variation in the samples . 3. The 168 kinds of the Gardenia jasminoides Ellis ’s solutions for NIT （near infrared transmitting）calibration curves . The results showed that the regression-coefficient（R2 value） of calibration for chemical composition as total sugar , total phenol and geniposides were 0.890、0.758 and 0.844 , respectively. The correlation coefficients（r）for prediction of these 3 constituents were 0.919 ,0.842 and 0.847 , respectively. It showed that these calibration curves could be used for rapidly determining these chemical characteristics. 4. The 129 kinds of the Gardenia jasminoides Ellis ’s powders for NIRS （near infrared spectroscopy）calibration curves . The results showed that the regression-coefficient（R2 value） of calibration for chemical composition as total sugar and total phenol were 0.917 and 0.771 , respectively. The correlation coefficients（r）prediction of these 2 constituents were 0.950 and 0.992 , respectively . It showed that these calibration curves could be used for rapidly determining these chemical characteristics.

Keywords : Gardenia jasminoides Ellis ; the chemistry ingredient analysis ; NIRS ; the near infrared reflecting spectroscopy

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