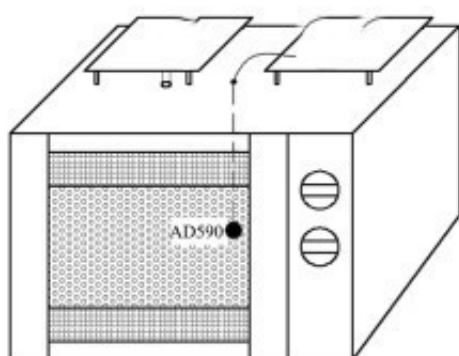


Effects of drying methods on physicochemical properties of *Alpinia officinalis* Tablets

ABSTRACT: Objective: To explore the changes of physical and chemical properties of Gaoliangjiang tablets before and after drying, and to determine the best drying method for quality assurance.

METHODS: The effects of six drying methods on the color, total phenol content, total flavonoid content, galangin content and volatile components of *Alpinia officinalis* Tablets were investigated by chromatograph, ultraviolet spectrophotometer, high performance liquid chromatography and solid phase microextraction-gas chromatography-mass spectrometry.



Schematic diagram of microwave drying temperature control system

RESULTS: Freeze-drying had the largest comprehensive retention of total phenols, total flavonoids and galangin, which were 20.95 (+0.13) mg/g, 12.19 (+0.01) mg/g, 11.45 (+0.03) mg/g, followed by vacuum heating drying, hot air drying, [microwave drying equipment](#), sun drying and natural air drying, and the peak area of volatile substances after natural air drying and sun drying was higher. The peak area statistics of the other four drying methods had little difference; the color of microwave drying was the darkest, the red and green value a^* was 13.92, followed by hot air drying, and the color of freeze drying was the lightest.

CONCLUSION: Freeze drying can be used for high-end products regardless of cost, solar drying can be used for environmental protection and energy saving, and traditional hot air drying is recommended for general industrial production.

Key words: [Alpinia officinalis microwave drying](#); drying method; total phenols; total flavonoids; galangin; color; volatile components

