Study on the extraction of essential oil and antioxidant activity of guava leaves by microwave assisted extraction

Guangxi key laboratory of sugar resource green processing, guangxi university of science and technology (liuzhou 545006, China) abstract microwave assisted extraction of essential oil from guava leaves was conducted to study the antioxidant activity of essential oil.

Taking the yield of volatile oil as the index, the optimal extraction process was optimized by single factor and orthogonal test.

The ability of extracts to scavenge DPPH and hydroxyl radicals was also tested.

The results show that:Microwave sterilization machineryThe optimal extraction technology for volatile oil from guava leaves is the solid-liquid ratio of 1:11 (g/mL), microwave irradiation time of 4 min, microwave power of 640 W. The essential oil of guava leaves has DPPH radical scavenging ability and hydroxyl radical scavenging ability.

Microwave assisted machineExtraction of essential oil from guava leaves is simple and feasible, and has a good application prospect. Keywords guava leaves; Microwave assisted extraction; Volatile oil; Antioxidant guajava L., Psidium guajava L., is the leaves of myrtle family, which has

the functions of astringent and antidiarrheal, dampness-invigorating spleen, heat-clearing and detoxification, etc.]. Modern scientific research shows that it also has many functions such as hypoglycemic, antibacterial and antiviral.

Essential oil is an important pharmacological component of guava leaves. Guo ying et al. identified 23 essential constituents of essential oil from guava leaves, mainly patchouli terpene (patchouli), accounting for 54.97% of the total.

At present, only the traditional steam distillation method is used to extract essential oil from guava leaves, which has a low oil yield. Therefore, it is necessary to establish a simple and efficient extraction process for essential oil from guava leaves.

The essential oil of guava leaves was extracted by microwave assisted extraction method. The antioxidant activity of essential oil from guava leaves was determined by DPPH radical scavenging ability and hydroxyl radical scavenging ability

Guava leaves, guangxi.

DPPH, analytical pure, Shanghai jinsui biotechnology co., LTD. Phloroline, analytical pure, tianjin kemi ouhua reagent co., LTD. Ethanol, ascorbic acid, hydrogen peroxide and disodium bisulfate were all analytically pure.

The volatile oil was extracted by steam distillation

According to the determination method of volatile oil in appendix XD of Chinese pharmacopoeia in 2010

Method (a), take a suitable amount of guava leaf dry grinding, press 1:5 (g/mL) of material liquid than water immerse 3 h, with volatile oil extractor 5 h of heating extraction, stay no longer increases amount of volatile oil in stop heating, condensation, let stand for 1 h after collecting the upper pale yellow oily liquid, put in the refrigerator for 24 h, anhydrous sodium sulfate dehydrate, set aside.

Microwave assisted extraction of volatile oil

50 g of dried guava leaf powder was placed in a 1000ml circular bottom flask, soaked with distilled water for a period of time, irradiated with microwave for a certain time, and then the volatile oil was collected by steam distillation and dehydrated with anhydrous sodium sulfate to calculate the yield of volatile oil.