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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

GB 1886.360-2022

**National food safety standard - Food additive - Tea
polyphenols**

食品安全国家标准 食品添加剂 茶多酚棕榈酸酯

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National food safety standard - Food additive - Tea polyphenols

1 Scope

This document is applicable to tea polyphenol palmitate, a food additive, that tea polyphenol is extracted from green tea as raw materials, that is made by palmitoyl chloride esterification, filtration, water-washing, desolvation, crystallization, centrifugation, freeze-drying and other processes.

2 Technical requirements

2.1 Sensory requirements

Sensory requirements shall meet the requirements of Table 1.

2.2 Physical and chemical indicators

Physical and chemical indicators shall meet the requirements of Table 2.

A.3.3 Identification test with water-soluble tea polyphenols

Weigh 20mg~30mg of tea polyphenol sample into a 10mL centrifuge tube 1. Then add 5mL of mixed solvent A. Shake to make it dissolved. Centrifuge at 4000r/min for 5min. Transfer the centrifuged supernatant to another 10mL centrifuge tube 2. Pipette 5mL of mixed solvent A into centrifuge tube 1. Centrifuge at 4000r/min for 5min. Transfer the centrifuged supernatant to centrifuge tube 2. Combine the supernatants. Dissolve the centrifuged precipitate in 10mL of absolute ethanol and record it as the precipitate. Pipette 1mL of supernatant and 1mL of precipitate into 10mL test tubes, respectively. Add 4mL of vanillin chromogenic solution to each tube. Mix well. Wait for 5min for color development.

Observe the color development results. If the supernatant is red, it means that the sample contains tea polyphenol palmitate. If the precipitate is red, it means that the sample contains tea polyphenols. If both are red, the sample is a mixture of tea polyphenol palmitate and tea polyphenols. If both are not colored, it means that the sample contains neither tea polyphenols nor tea polyphenol palmitate.

A.4 Determination of tea polyphenol palmitate content

A.4.1 Reagents and materials

A.4.1.1 Tea polyphenol palmitate: Use after drying to constant weight under vacuum at 45°C.

A.4.1.2 Vitamin C: Use after vacuum drying at 45°C to constant weight.

A.4.1.3 Ethyl gallate: Purity is 99.0%. Use after drying to constant weight under vacuum at 45°C.

A.4.1.4 Vitamin C solution: 0.075mol/L. Accurately weigh 1.32g of vitamin C. Use water to dissolve and set volume to 100mL.

A.4.1.5 Triethanolamine solution: Weigh 50.0mL of triethanolamine. Add 25mL of water to dilute. Transfer to a 100mL volumetric flask. Use water to dilute to the scale.

A.4.1.6 Standard stock solution of ethyl gallate: Accurately weigh 0.10g of ethyl gallate. Use water to dissolve and set volume to 100mL.

A.4.1.7 Tea polyphenol palmitate ethanol solution: Accurately weigh about 500mg of tea polyphenol palmitate (to the nearest of 0.1mg). Record it as the dry weight of tea polyphenol palmitate, m. Use anhydrous ethanol to dissolve and set volume to 100mL.

A.4.1.8 Ferrous tartrate solution: Accurately weigh 1.60g of Ferrous sulfate ($\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$) and 8.04g of potassium sodium tartrate. Respectively use water to dissolve. Transfer to a 1000mL volumetric flask. Dilute to the scale.

A.4.2 Analysis steps

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