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Detection of total polyphenols in bee pollen-Colorimetric method using Folin-Ciocalteu reagent

蜂花粉总多酚的检测 福林酚试剂比色法

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the China Federation of Supply and Marketing Cooperatives.

This document is under the jurisdiction of the National Technical Committee on Standardization of Bee Products (SAC/TC 601).

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Detection of total polyphenols in bee pollen Folin phenol reagent Colorimetry

1 Scope

This document describes a colorimetric method using Folin-phenol reagent for the determination of total polyphenols in bee pollen.

This document is applicable to the determination of total polyphenols content in bee pollen.

2 Normative references

GB 5009.3-2016

GB/T 6682

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 bee pollen

Worker bees collect pollen using a substance formed by mixing saliva and nectar.

[Source. GB/T 30359-2021, 3.2]

4 Principle

The phenolic hydroxyl groups of total polyphenols extracted from bee pollen by ultrasonic extraction with 75% ethanol solution reacted with phosphotungstomolybdic acid in Folin-phenol reagent under alkaline conditions.

Hexavalent tungsten ions (W6) react to generate blue pentavalent tungsten ions (W5), which can produce maximum absorption at a wavelength of 765 nm.

The absorbance is proportional to the total polyphenol content. By comparing with the gallic acid standard curve, the total polyphenol content can be quantitatively determined. The content of the substance.

5 Reagents and Materials

Unless otherwise specified, only analytical grade reagents were used.

5.1 Water, GB/T 6682, grade 3. 5.2 Anhydrous ethanol.

5.3 Anhydrous sodium carbonate.

5.4 Folin?Ciocalteu reagent. 1 mol/L (or 1 N), packed in brown bottles, stored at 4 °C away from light.

Direct purchase or preparation, preparation method see Appendix A.

5.5 75% (volume fraction) ethanol solution. Add 25 mL of water to 75 mL of anhydrous ethanol (5.2), mix and shake well.

5.6 Sodium carbonate solution (10.0%). weigh 10.00 g ± 0.02 g of anhydrous sodium carbonate (5.3), dissolve in water and dilute to 100 mL.