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Metal ions removal in water soluble extracts of agricultural products-Ion exchange method

农产品水溶性提取物中金属离子消除方法 离子交换法

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Table of Contents

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 is proposed and coordinated by the China National Institute of Standardization.

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Metal ions in water-soluble extracts of agricultural products Elimination method. ion exchange

1 Scope

This document describes an ion exchange method for the elimination of metal ions from water-soluble plant extracts of agricultural products.

This document applies to lead (Pb2), cadmium (Cd2), mercury (Hg2), arsenic in water-soluble plant extracts of agricultural products such as polysaccharides and polyphenols.

It is suitable for the elimination of major metal ions (AsO33) and free cations of harmful elements, but not for the elimination of free cations with carboxyl (-COOH) and chloride ions (Cl-).

The anionic extract samples were used for reference in large-scale processing.

2 Normative references

GB 5009.11

GB 5009.12

GB 5009.15

GB 5009.17

GB 5009.268

GB/T 5475

GB/T 6682

GB/T 13659

GB/T 16579

3 Terms and definitions

There are no terms or definitions that require definition in this document.

4 Principle

The water-soluble plant extract samples of agricultural products were dissolved in water,

mixed and filtered, and the filtrate was passed through a strong acid cation exchange resin column.

The H in the resin reacts with the four harmful elements of lead (Pb2), cadmium (Cd2), mercury (Hg2), and arsenic (AsO33) in the filtrate.

Exchange, and finally rinse with water to complete the elimination process of metal ions.

5 Reagents and Materials

Unless otherwise specified, only analytical grade reagents were used and the water was grade 2 water as specified in GB/T 6682.

5.1 Solution preparation

5.1.1 Hydrochloric acid solution (1 mol/L). Take an appropriate amount of water in a 1 000 mL volumetric flask, accurately measure 86 mL of hydrochloric acid in the volumetric flask, and