



ORYZA OIL & FAT CHEMICAL CO.,LTD.

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PRODUCT STANDARD

PRODUCT NAME: **JAPANESE BUTTERBUR EXTRACT-P** (FOOD)

This product is extracted with aqueous ethanol from Japanese butterbur, the stem and the leaves of *Petasites japonicus* (Compositae).

Appearance

Slight yellowish powder with slight unique aroma.

Certification Test

(1)Fukinolic acid

After a small amount of methanol (HPLC grade) is added to 250mg of this product in a 10mL volume flask, and the flask is treated with ultra-sonic wave for 10 minutes. The solution is filtered through a 0.45 μ m PTFE filter after addition of methanol (HPLC grade) to adequate volume. For preparation of standard solution, methanol (HPLC grade) is added to fukinolic acid, and the concentration is prepared 0.1mg/mL (standard solution). HPLC analysis is performed according to the following conditions for 5 μ L of test solution and standard solution. The peak of fukinolic acid is found in the HPLC chromatogram of test solution.

<HPLC condition >

Column : capcellpak C18 (4.6 mm ϕ \times 250 mm)
 Mobile phase : Solvent A = Citric acid solution
 (citric acid monohydrate 2.1g \rightarrow 1L)
 Solvent B = Methanol

Condition of gradient

Time(min)	0	19	25	35	50	60	61	70
Mobile phase	100% A	100% A	80%A 20%B	80%A 20%B	60%A 40%B	60%A 40%B	100% B	100% B

Flow rate : 1.0mL/min

Detector : UV 324 nm

Column temperature : 30°C

(2)Fukinone

This product (2.0g) in a centrifugation tube is suspended in purified water (10mL), and treated with ultra-sonic wave for 1 minute. Ethyl acetate (10mL) is added to the suspension, and the tube is shaken for 3 minutes. Then the tube is centrifuged (room temperature, 3000 rpm, 10minutes), and an ethyl acetate layer is collected (repeat this procedure three times) . The collected ethyl acetate layer is evaporated and is dissolved in 20% acetonitrile (3mL), and is filtered through a Sep-Pak C18 cartridge. Then, the cartridge is washed with 70% acetonitrile (7mL) and is eluted with absolute acetonitrile (5mL). This solution is adjusted to 10mL, and filtered through a 0.45 μ m PTFE filter (test solution). For preparation of standard solution, acetonitrile is added to fukinone, and the concentration is prepared 0.1mg/mL (standard solution). HPLC analysis is performed according to the following conditions for 5 μ L of test solution and standard solution. The peak of fukinone is found in the HPLC chromatogram of test solution.



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< HPLC condition >

Column : Shim-pack CLC-ODS (6.0 mm ϕ \times 150 mm)
 Mobile phase : acetonitrile : water = 8 : 2
 Flow rate : 1.0mL/min
 Detector : UV 254 nm
 Column temperature : 30°C

<u>Total polyphenols</u>	Min. 1.0 %	(Folin-Denis method)
<u>Total terpenoids</u> [In non-exciptient from(JAPANESE BUTTERBUR EXTRACT)]	Min. 300 μ l / 100g	(Japanese Pharmacopoeia, Essential oil content) (Theoretical value in JAPANESE BUTTERBUR EXTRACT-P : Min.60 μ L/100g)
<u>Loss on Drying</u>	Max. 10.0 %	(Analysis for Hygienic Chemists, 1g, 105 °C, 2 hr)
<u>Purity Test</u>		
(1)Heavy Metals (as Pb)	Max. 10 ppm	(Sodium Sulfide Colorimetric Method)
(2)Arsenic (as As ₂ O ₃)	Max. 1 ppm	(Standard Methods of Analysis in Food Safety Regulation, The Third Method, Apparatus B)
<u>Standard Plate Counts</u>	Max. 3 \times 10 ³ cfu/g	(Analysis for Hygienic Chemists)
<u>Moulds and Yeasts</u>	Max. 1 \times 10 ³ cfu/g	(Analysis for Hygienic Chemists)
<u>Coliforms</u>	Negative	(Analysis for Hygienic Chemists)

<u>Composition</u>	<u>Ingredient</u>	<u>Content</u>
	Maltodextrin	80 %
	Japanese Butterbur Extract	20 %
	Total	100 %

Expiry date

2 years from date of manufacturing.

Storage

Store it in a cool, dry, ventilated area with desiccant.

Keep it away from high temperature and sunlight, and store it in a closed container.

Established Date	June 5, 2004
Revised Date	June 3, 2019
Specification No.	G-903EN