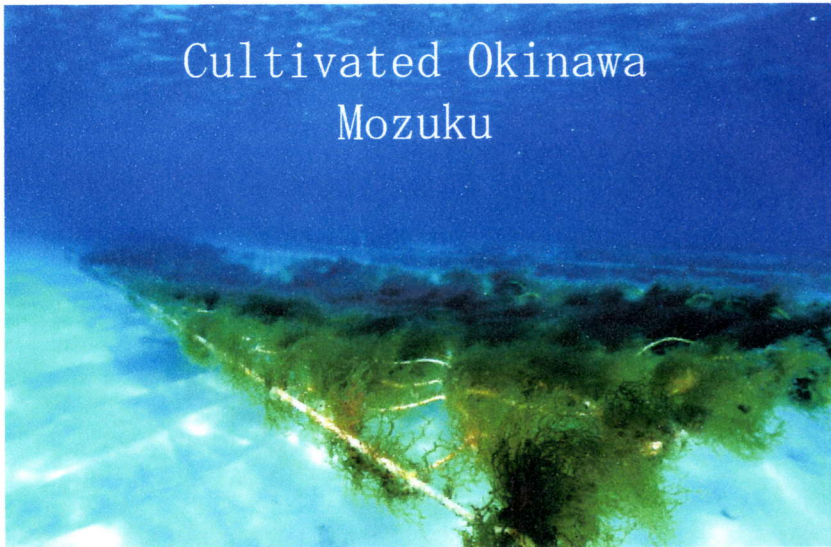


What is Okinawa Mozuku?

Okinawa Mozuku *Cladosiphon okamuranus*

Mozuku is a seaweed variety that has traditionally been a part of the local diet and is an indigenous product of the Ryukyu Archipelago. It is eaten in Okinawa with a mixture of vinegar, soy sauce, and sugar that is known as 'Sunui' in the local dialect. The seaweed itself is viscous, approximately 1.5~3.5mm in diameter, and 25~30cm in length. The majority of the mozuku available on the domestic market originates in Okinawa. It is considered an important element of the longevity Okinawa is well known for.

Cultivated Okinawa
Mozuku

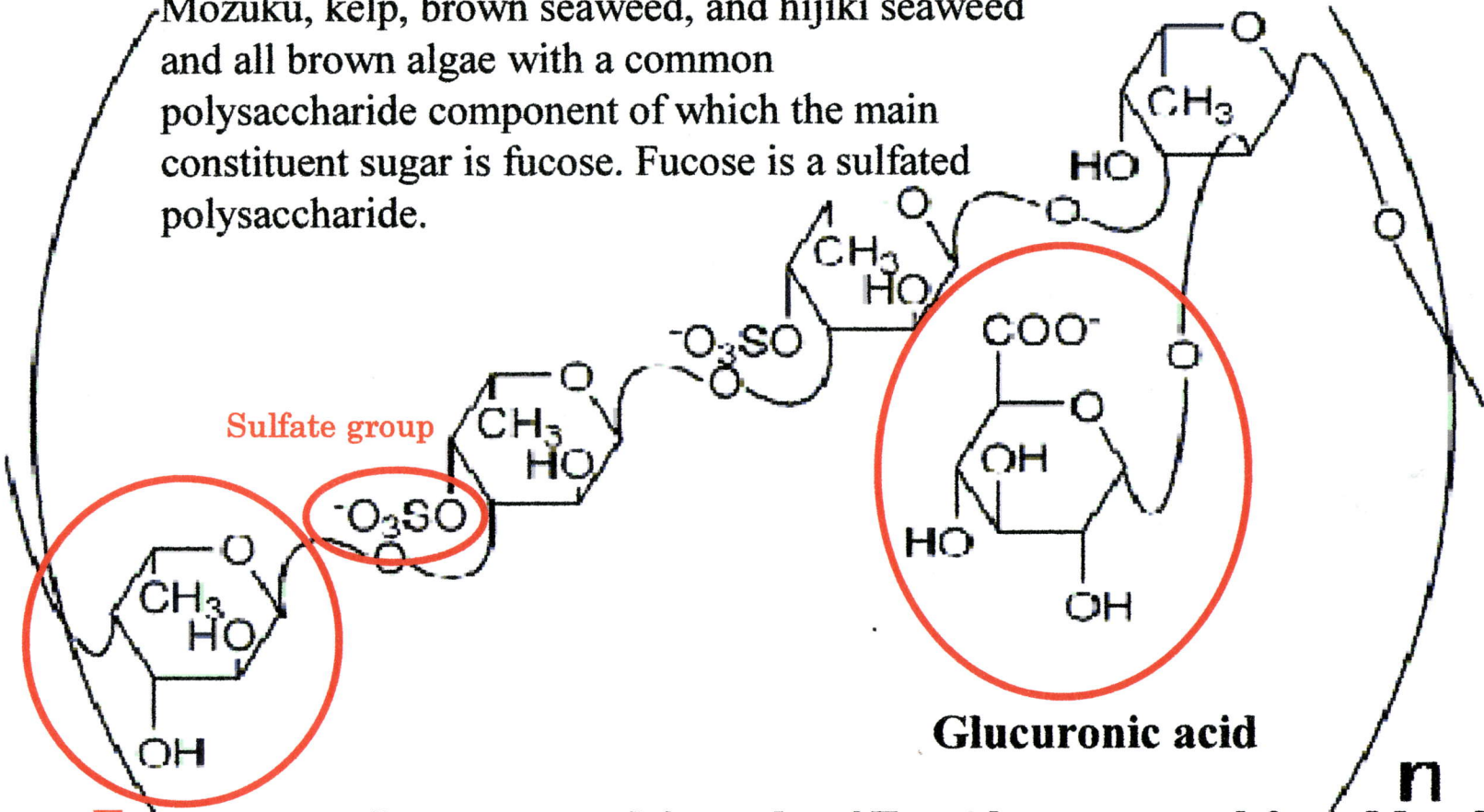


Harvesting Okinawa
Mozuku



What is Fucoidan?

Mozuku, kelp, brown seaweed, and hijiki seaweed and all brown algae with a common polysaccharide component of which the main constituent sugar is fucose. Fucose is a sulfated polysaccharide.



Fucose

Glucuronic acid

Constitutional formula of Fucoidan extracted from Mozuku

Chemical analysis of Mozuku extracted Fucoidan

Item	Fucose content ¹⁾	Uronic acid content ²⁾	Sulfuric acid content ³⁾	Molecular mass ⁴⁾	Fucoidan content ⁵⁾
Measured values ⁶⁾	45.6 %	26.7 %	19.1 %	77,000	89.9 %
Value of standard	—	—	>13 %	30,000~ 150,000	>85 %

1) anthrone-sulfuric acid method

2) Carbazole sulfuric acid method

3) Ion chromatograph method

4) HPLC gel filtration technique

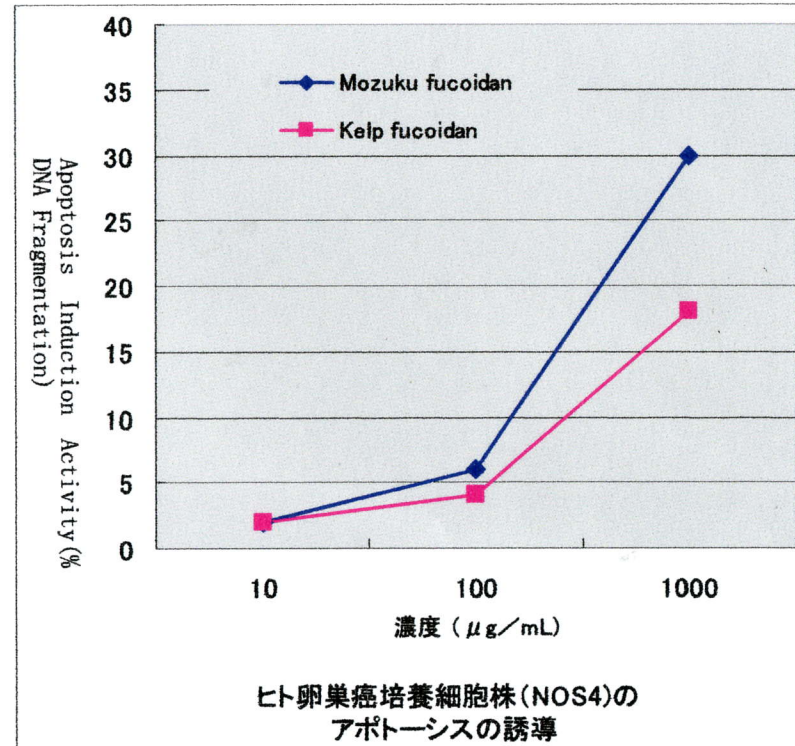
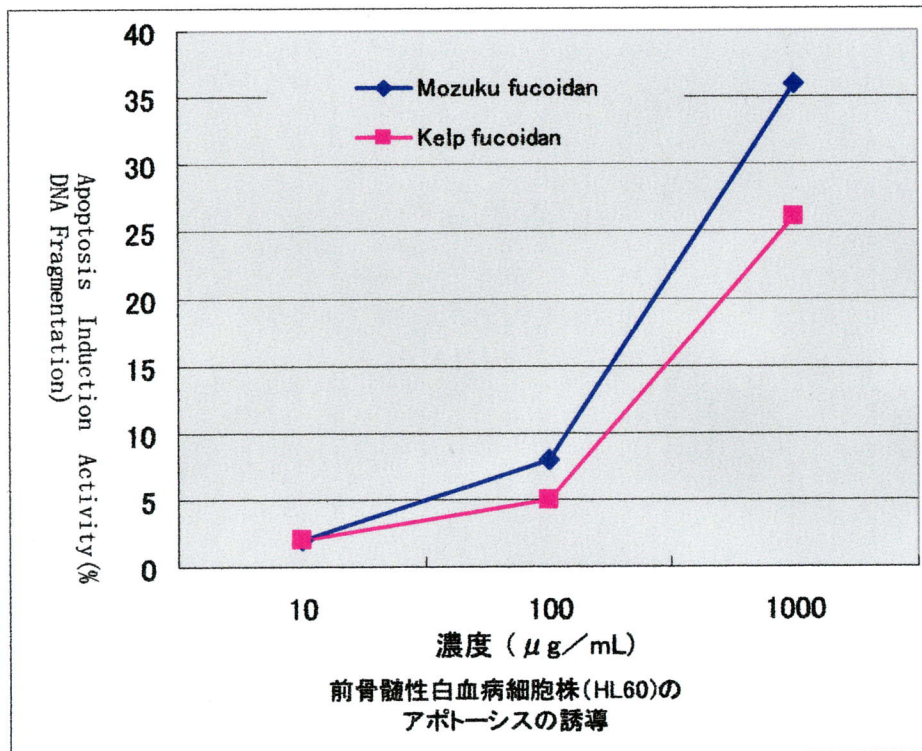
5) HPLC gel filtration technique

6) Average of 4 lots

Mozuku extracted Fucoidan Efficacy

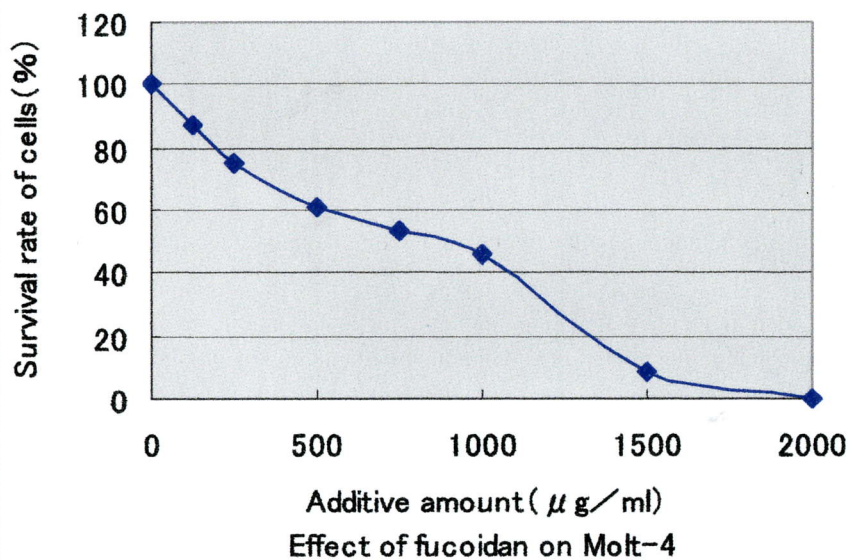
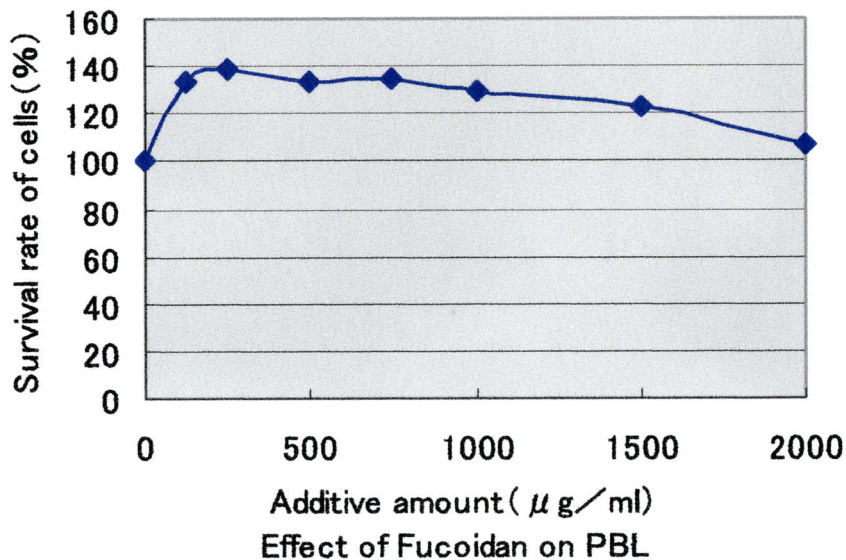
1. Apoptosis induction activity
 2. *Antitumor activity*
 3. *Immunostimulatory activity*
 4. *Antiobesity activity*
 5. *Blood pressure lowering effect*
 6. *Hypoglycemic activity*
-

Apoptosis Induction Activity



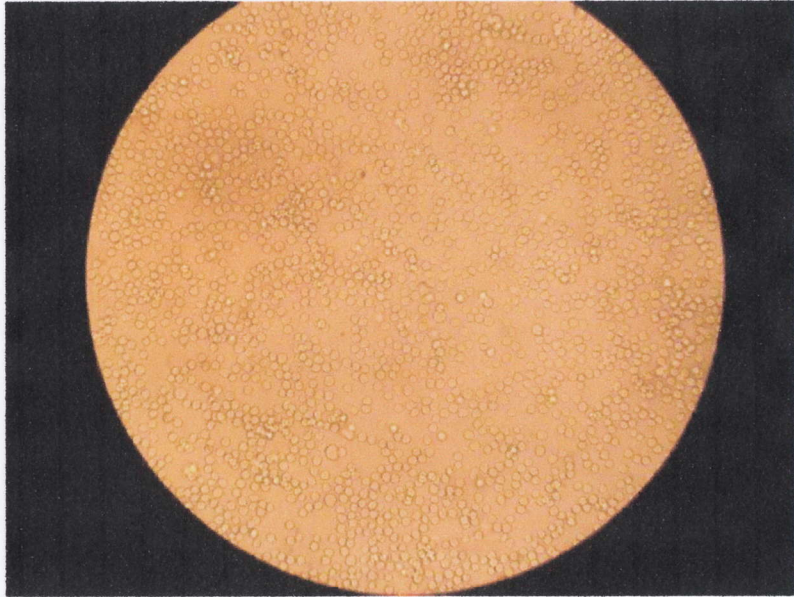
When measuring the apoptosis induction activity of Okinawa Mozuku extracted Fucoidan and fucoidan extracted from kelp, it was found that Fucoidan extracted from Okinawa Mozuku had a more significant apoptosis inducing effect than kelp extracted fucoidan.

Antitumor Activity①

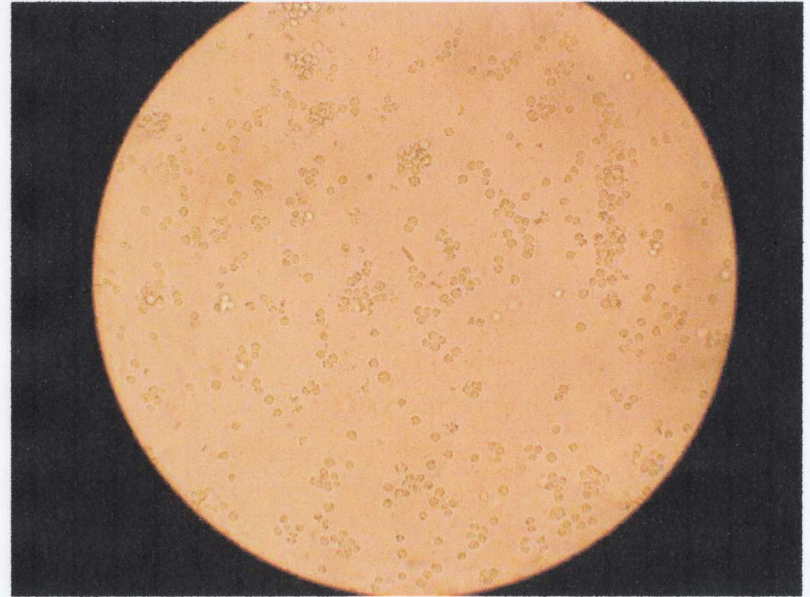


While there was no noticeable decrease in viability of healthy cells (PBL), the concentration dependency of tumor cell (Molt-4) survival was suppressed. It was therefore inferred that Okinawa Mozuku extracted fucoidan has specific effects on cancer cells.

Antitumor Activity ②



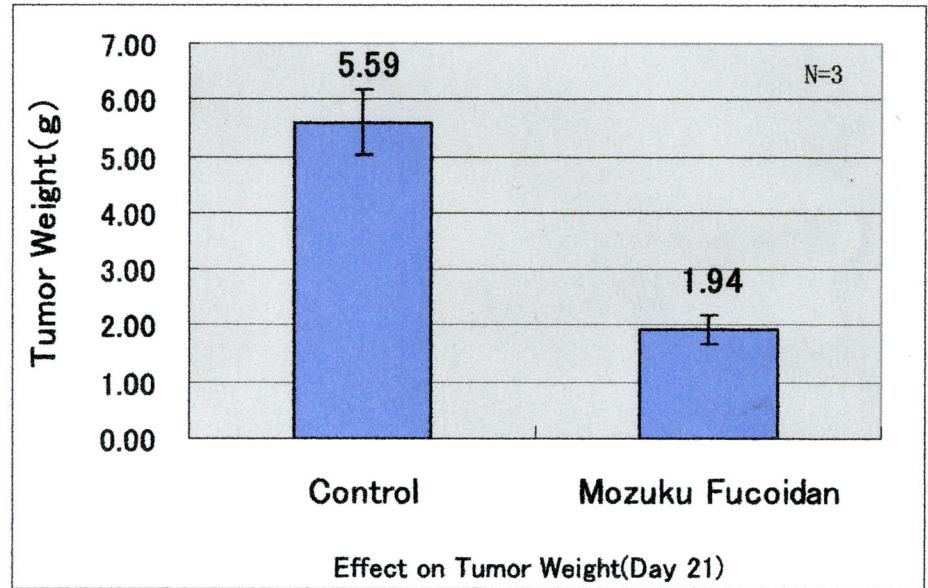
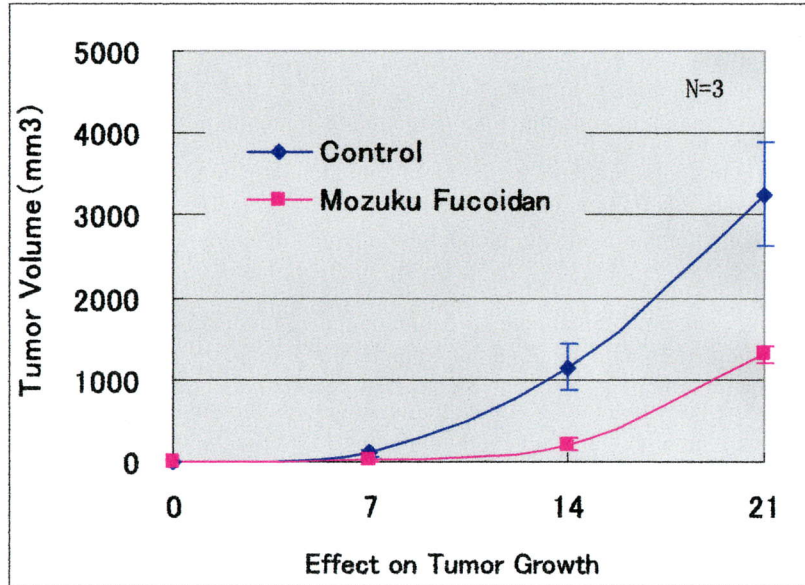
Additive Free - Fucoidan



Fucoidan 1500 μ g/ml Additive

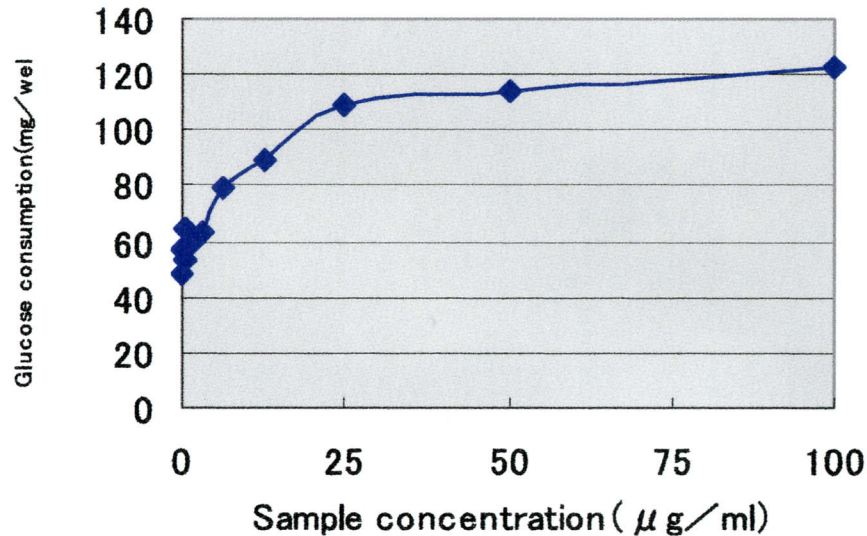
The left picture shows that tumor cells that are continuously incubated, continued to multiply. The right picture shows that cell multiplication is suppressed with Okinawa Mozuku extracted fucoidan.

Antitumor Activity ③

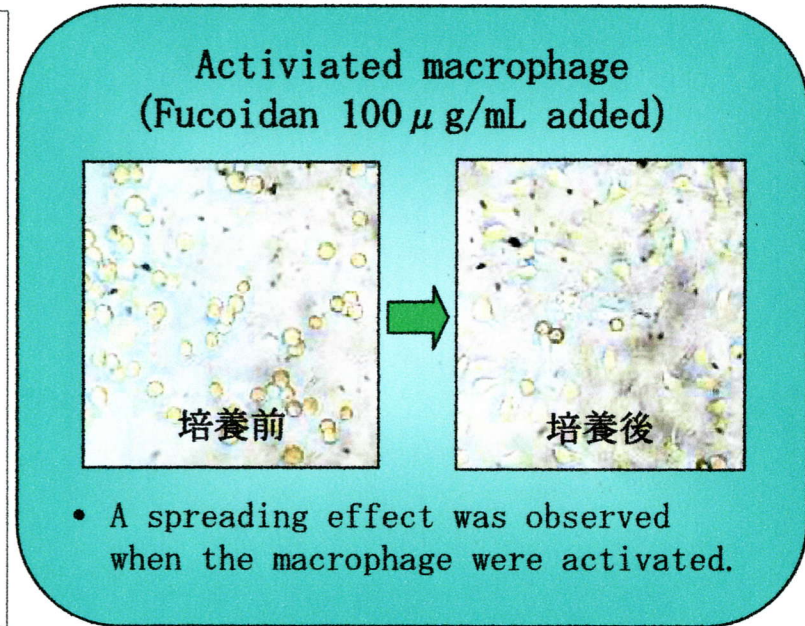


Oral administration of Okinawa Mozuku extracted Fucoidan resulted in the suppression of tumor cells in a Sarcoma180 inoculated mouse.

Immunostimulatory activity

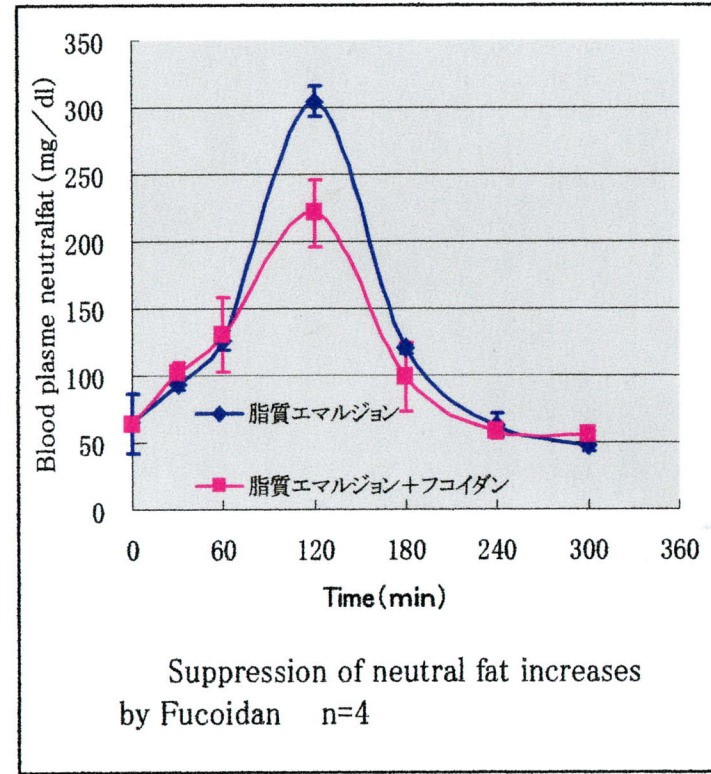
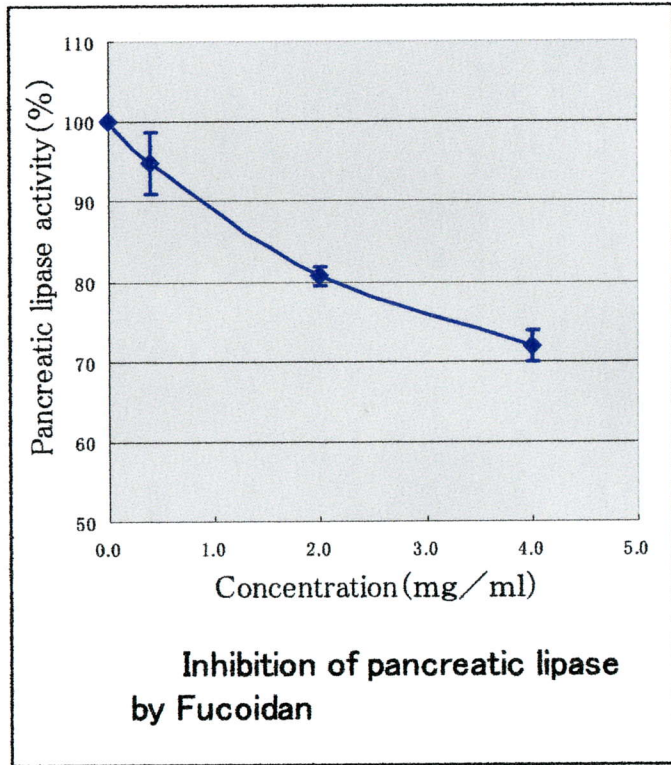


Macrophage activation as Indicated by glucose consumption



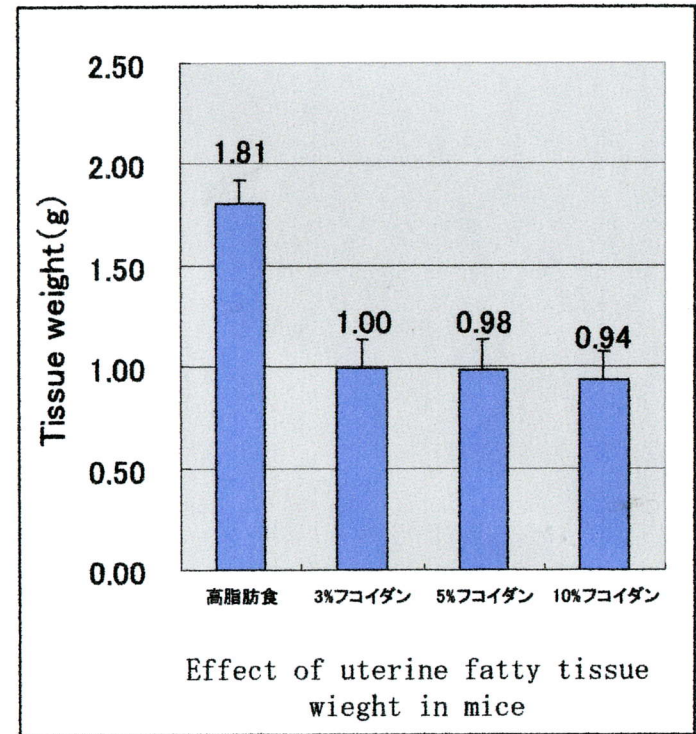
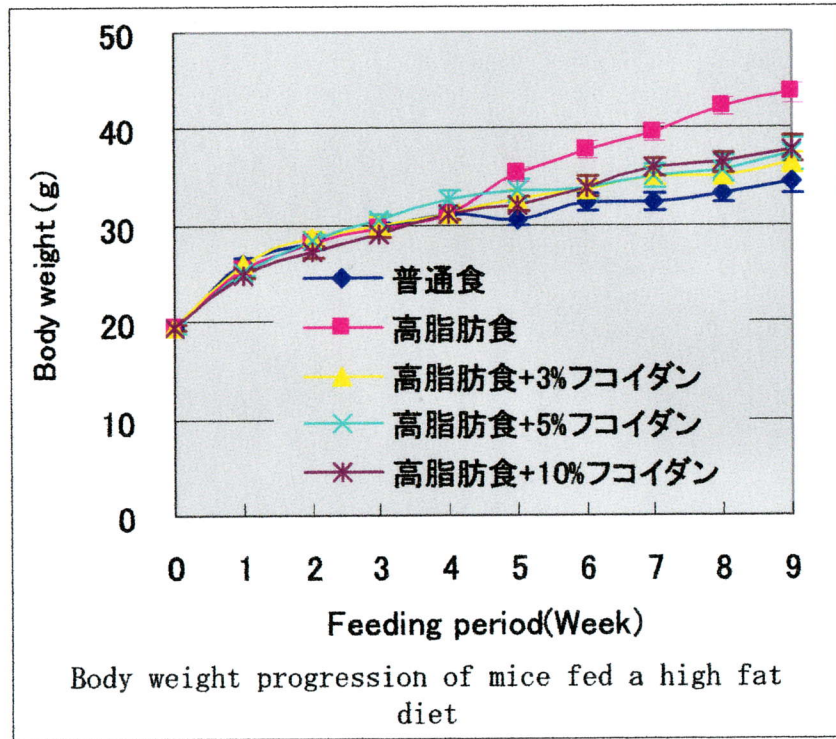
Glucose consumption was used as a point of reference for measuring the activation of mice macrophage. Okinawa Mozuku extracted fucoidan caused an increase in glucose consumption and therefore it can be concluded that it has causes immunostimulatory activity.

Antiobesity Effect ①



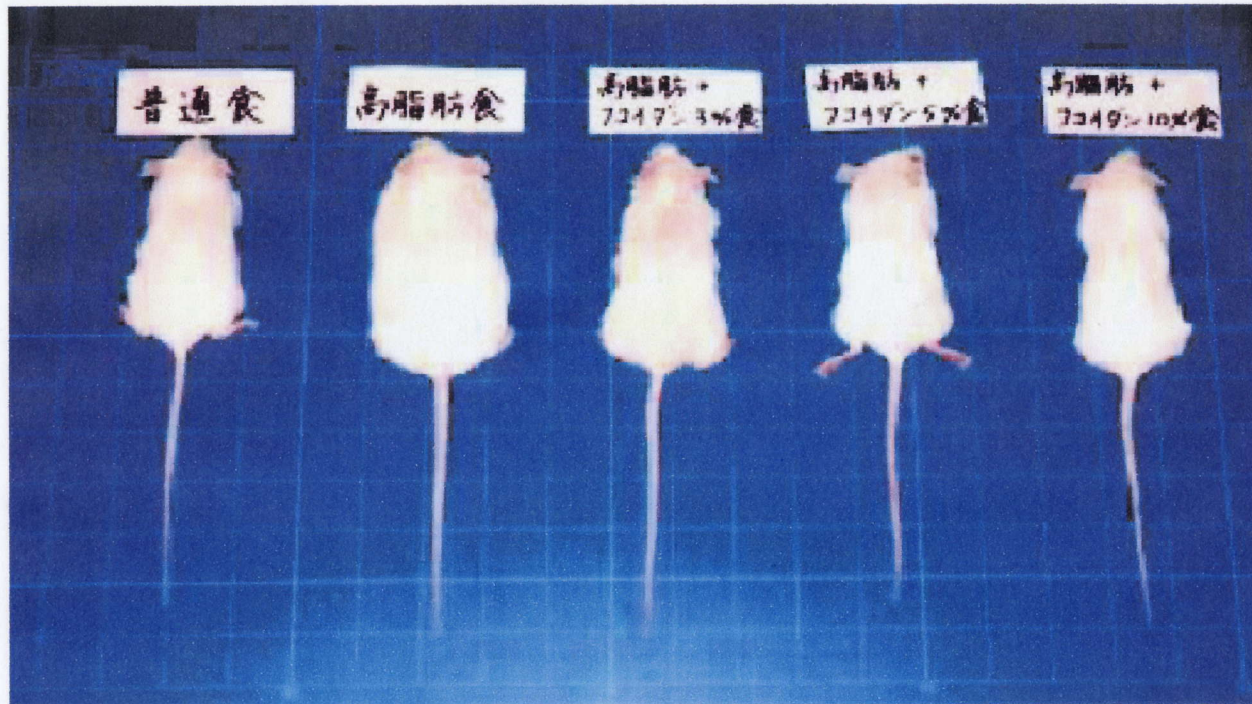
Fucoidan extracted from Okinawa Mozuku is a lipolytic enzyme which inhibits the activity of pancreatic lipase. In experiments where rats were orally administered fucoidan, increases in neutral fat in the blood after administration were suppressed.

Antiobesity effect ②



By adding fucoidan extracted from Okinawa mozuku to a high fat diet, increases in body weight and uterine fatty tissue weight was suppressed.

Antiobesity effect ③







Body weight progression of mice fed a high fat diet

Confirmed Evidence

2002	<ul style="list-style-type: none"> • Journal of Japan Clinical and Alternative Medicine Volume 1 “The Pharmacological effect of “Fucoidan” extracted from <i>Cladosiphon okamuranus</i> ”
2003	<ul style="list-style-type: none"> • Japanese Cancer Association 62nd General Meeting “Potential T cell Leukemia Treatments with Fucoidan from <i>Cladosiphon okamuranus</i> ”
	<ul style="list-style-type: none"> • American Society of Hematology 45th General Meeting 「Apoptosis Induced by Fucoidan from Okinawan <i>Cladosiphon Okamuranus</i> Tokida in HTLV- I - Infected T-Cell Lines and Primary ATL Cells.」
2004	<ul style="list-style-type: none"> • The Japanese Journal of Constitutional Medicine Volume 66 “Antiobesity Activity of Fucoidan from Okinawan <i>Cladosiphon okamuranus</i> ”
	<ul style="list-style-type: none"> • ” Fucoidan Extract Powder Capsule” JACT Accreditation
	<ul style="list-style-type: none"> • Japanese Cancer Association 63rd General Meeting “Anticancer effect of Fucoidan from Okinawan <i>Cladosiphon okamuranus</i> on Gastric Cancer Cell Lines” “Inverstigation of the Anticancer Effect due to differences in Molecular Weight and Elements of Fucoidan from Okinawan <i>Cladosiphon okamuranus</i> ” 「
2005	<ul style="list-style-type: none"> • Japanese Cancer Association 64th General Meeting “Anticancer effect of Fucoidan from Okinawan <i>Cladosiphon okamuranus</i> on Sarcoma Cell Lines in Mice”
	<ul style="list-style-type: none"> • Journal of the Japanese Society of Nutrition and Food Science Volume 58 “Biologicla Activity of Fucoidan based on differences in Molecular Weight and Components”
	<ul style="list-style-type: none"> • Nutrition and cancer, 52(2), 189-201 「Fucoidan extracted from <i>Cladosiphon okamuranus</i> Tokida induces apoptosis of human T-cell leukemia virus type 1-infected T-cell lines and primary adult T-cell leukemia cells」
2006	<ul style="list-style-type: none"> • Japanese Cancer Association 65th General Meeting “Fucoidan extracted from Okinawan <i>Cladosiphon okamuranus</i> and the Mechanism for Inducing Mouse Macrophage NO Production” “Anticancer effects of Okinawan <i>Cladosiphon okamuranus</i>”

Furoidan Products

			
<p>Product name : Furoidan Extract Powder Capsules</p>	<p>Product name : Furoidan Extract Granules</p>	<p>Product name : Okinawa Furoidan Capsules</p>	<p>Product name : Super Furoidan (Liquid)</p>
<p>Quantity : 150 capsules</p>	<p>Quantity : 45g 【1.5g×30 sachets】</p>	<p>Quantity : 180 capsules</p>	<p>Quantity : 100ml×30 sachets</p>
<p>Price : ¥ 15,750</p>	<p>Price : ¥ 15,750</p>	<p>Price : ¥ 18,900</p>	<p>Price : Open</p>
<p><u>Contains 25g of Mozuku extract (Furoidan).</u> The functional ingredient of this product is furoidan extracted from Okinawa Mozuku using our unique patented manufacturing process. The product is sold in hard capsule form.</p>	<p><u>Contains 25g of Mozuku extract (Furoidan).</u> The functional ingredient of this product is furoidan extracted from Okinawa Mozuku using our unique patented manufacturing process. The product is sold in granulated powder form.</p>	<p><u>Contains 42g of Mozuku extract (Furoidan).</u> The functional ingredient of this product is furoidan extracted from Okinawa Mozuku using our unique patented manufacturing process. The extract is then powdered and put in capsules containing 100% Okinawa Mosuku extract.</p>	<p><u>Contains 30g of Mozuku extract (Furoidan).</u> The functional ingredient of this product is furoidan extracted from Okinawa Mozuku using our unique patented manufacturing process. The product combines mozuku extract and lychee mycelium extract and is packaged as a liquid in a retort pack.</p>