

# Alpha Glucosyl Hesperidin

highly soluble bioflavonoid from Hayashibara



for toning up your skin



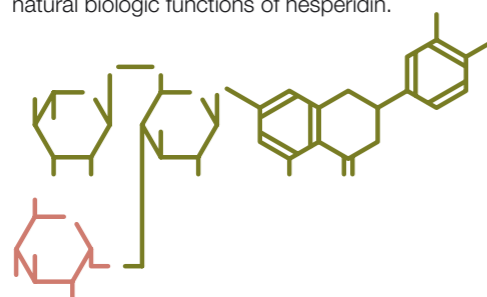
# Alpha Glucosyl Hesperidin

For centuries in Japan, citrus peels have been added to hot bath water both for their relaxing aromatic effects and to provide "a body warming sensation" after bathing. It is now understood that hesperidin, which belongs to a class of natural substances known as bioflavonoids, is an active component of citrus peel and is responsible for the body warming sensation by stimulating circulation to the skin.

As hesperidin is poorly soluble it is difficult to use in many health, beauty and cosmetic products.

**Alpha glucosyl hesperidin from Hayashibara** (glucosyl hesperidin) is a highly soluble form of hesperidin, making it possible for the first time to utilise the benefits of hesperidin in many cosmetics products.

**Glucosyl hesperidin** is composed of natural glucose and hesperidin, bound together using proprietary technology developed exclusively by Hayashibara. This process results in dramatically improved solubility while retaining all of the natural biologic functions of hesperidin.



## High solubility

By combining a **glucose** molecule with **hesperidin**, glucosyl hesperidin is 10,000 times more soluble in water than regular hesperidin.

When cosmetics containing glucosyl hesperidin are applied to the skin, an enzyme called  $\alpha$ -glucosidase which is naturally present in the skin slowly releases the healthful benefits of hesperidin.

	water solubility (g/100g of water)
hesperidin	0.002
glucosyl hesperidin	>20

The high solubility of glucosyl hesperidin makes it extremely suitable for use in skin care and bathing products.

## Formulation Benefits

**Glucosyl hesperidin** is stable at high temperatures and over a wide range of pH conditions. For example, between pH 3 and 8 at 100°C it remains stable for at least 90 minutes.

## for improved skin tone – by stimulating surface circulation

Many skin problems – such as dark circles under the eyes, dull skin, dark skin and puffy skin – can be due to poor circulation to the skin.

Lack of circulation to the skin can be caused by day-to-day stress, a cold climate, lack of exercise or lack of sleep; but the result is always the same: tired, older looking skin.

**Glucosyl hesperidin** has been scientifically shown to improve circulation when applied to the skin, thus helping to overcome the negative physical effects caused by stress, tiredness and cold.

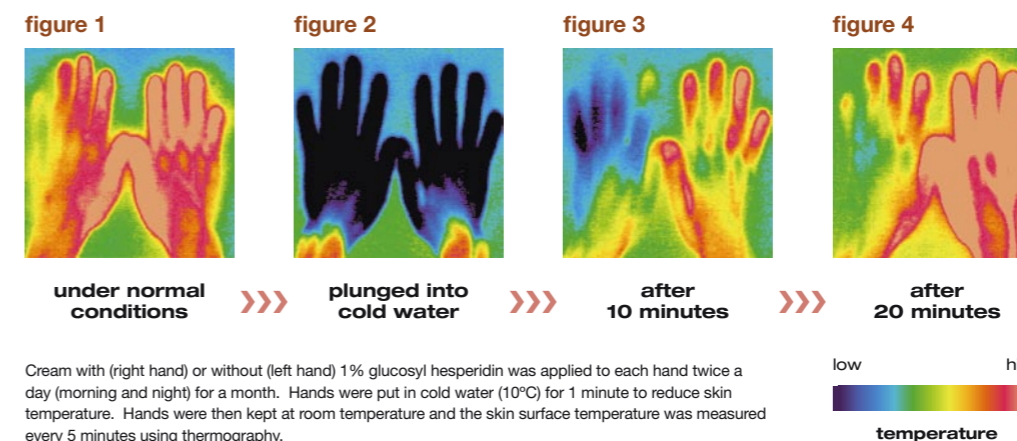
**By stimulating surface circulation, glucosyl hesperidin can improve skin tone and colour, helping to combat**

- dark circles under the eyes
- dull complexion
- tired skin
- aging skin
- puffy skin

## for skin care creams

The regular application of a cream containing 1% glucosyl hesperidin has been shown to stimulate circulation to the skin.

The images below show how glucosyl hesperidin helps to improve circulation to the surface of the skin.



## for bathing products

For centuries in Japan, citrus peels have been used in therapeutic bathing to help alleviate problems commonly associated with poor circulation, such as constantly cold hands and feet and certain types of muscular aches.

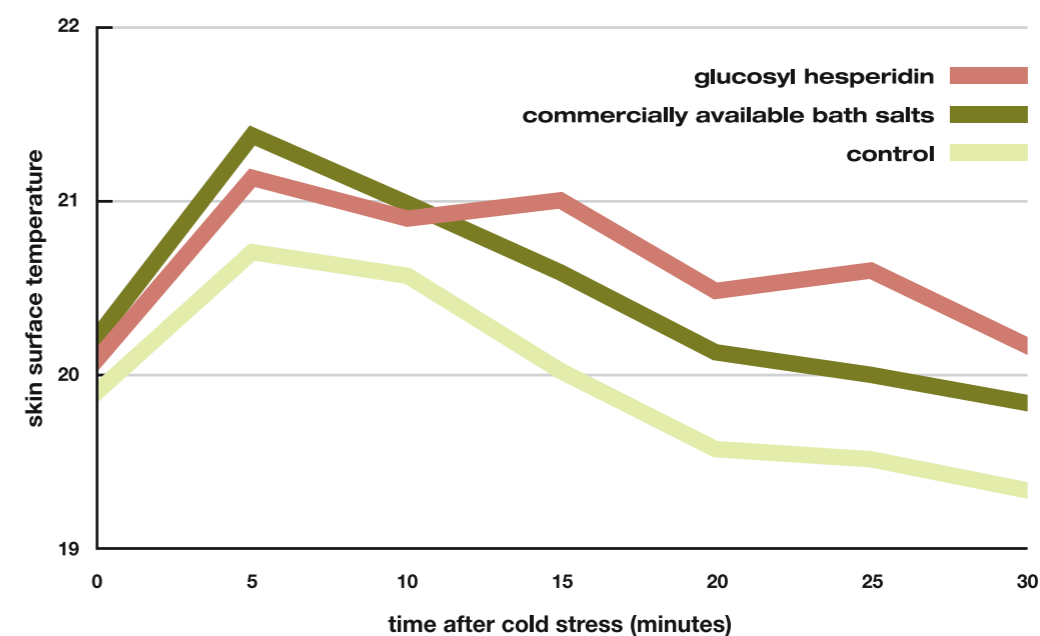
In these pictures, the right hand has had applications of a cream containing 1% glucosyl hesperidin for a period of one month. The left hand is untreated, for control purposes.

**Figure 1** shows skin surface temperature under normal conditions.

**Figures 2 to 4** show the relative recovery in skin temperature 10 and 20 minutes after removal from cold water, both hands having been plunged into cold water for one minute.

Due to its high solubility, glucosyl hesperidin may be used in aromatherapy bathing products to help stimulate circulation to the skin and provide a continuing soothing warmth after bathing.

This activity has been demonstrated using human volunteers. When added to bath water (0.01% w/v) glucosyl hesperidin resulted in increased skin temperature.



Test solutions were prepared for: 1) control (lukewarm water), 2) commercially available bath salts (0.01 w/v %), and 3) glucosyl hesperidin (0.01 w/v %). The feet of 6 healthy subjects were immersed in each test solution for 10 minutes at 40°C. They then were immersed in cold water (10°C) for 1 minute. Skin surface temperature was measured using thermography every five minutes. At 15, 25 and 30 minutes the average temperature of skin was greater for subjects treated with  $\alpha$  glucosyl hesperidin.

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**INCI name: Glucosyl hesperidin**

**Alpha Glucosyl Hesperidin**  
is manufactured by  
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