



**HIGH PHLORETIN-G (ANTIOXIDANT)
CITRUS MICROCARPA (LIMAU KASTURI) EXTRACT LIQUID 7ML/50ML**
Traditional Medicine for General Health



Limau Kasturi (*Citrus microcarpa*)

***Citrus microcarpa* contains a range of active components including Phloretin with higher antioxidant capacity than apple and green tea.**

Research conducted by scientists from **Malaysian Agricultural Research & Development Institute (MARDI)** has suggested that *Citrus microcarpa* has many potential health benefits.

The main objective of this research is to extract active components from *Citrus microcarpa* in order to develop a unique high antioxidant formula. The components are **Phloretin-G, Vitexin** and **Ferulic Acid**.

The **fermentation** process utilizing a special Halal Enzyme imported

from Denmark successfully increased Phloretin-G content in the extract.

The research conducted is to ensure that *Citrus microcarpa* and the enzyme mixture could maintain the antioxidant stability without using any preservatives.

From the research, it is proven that *Citrus microcarpa* has more nutrients, specifically Phloretin-G in which the antioxidant activities work better than apple and green tea.

What makes us proud of this local product is that, its level of antioxidant is relatively greater than other existing products in the market. This is how **CELLCODE** comes into being.



HPLC-MS-MS technology has been used to determine the level of Phloretin-G

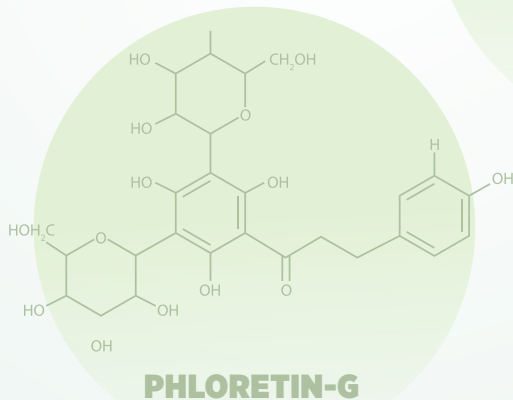
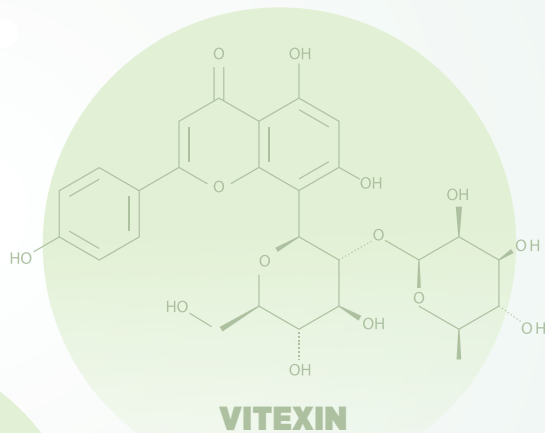
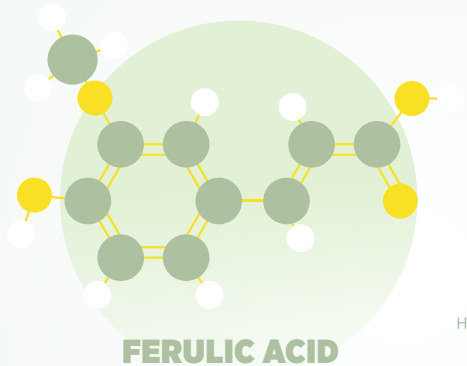
PROCESS & TECHNOLOGY

In order to determine the level of Phloretin-G in *Citrus microcarpa*, the researchers have employed a sophisticated **HPLC-MS-MS** equipment. Phloretin-G antioxidant activities have been measured using a specifically developed online antioxidant test coupled to the HPLC.



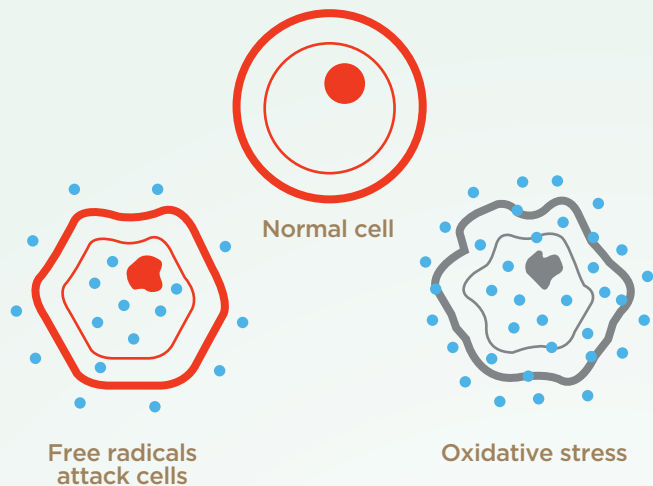
What is CELLCODE?

- ✓ Traditional antioxidant medicine formulated by **MARDI**.
- ✓ Formulated with 100% natural ingredients without any preservatives or chemical additives
- ✓ Contains **Phenolic Acids** which can be easily absorbed within 5 to 30 minutes after consumption.
- ✓ Registered with the Ministry of Health (MOH) with product registration number **MAL19046129TC**.
- ✓ Registered with Halal JAKIM authority with product registration number **MS2424:2012 1025-03/2015**.



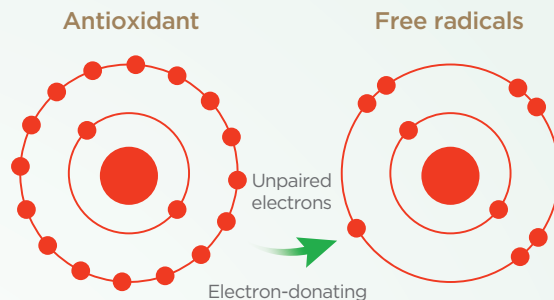
CELLCODE contain high level of antioxidant, which includes **Phloretin-G**, **Vitexin**, **Ferulic Acid** and **Vitamin C**. Each exhibits/possesses retain different properties but could work well from the inside out.

What is Antioxidant?



Oxidative stress is essentially an imbalance between the production of free radicals and the ability of the body to counteract or detoxify their harmful effects through neutralization by antioxidants. A free radical is an oxygen containing molecule that has one or more unpaired electrons, making it highly reactive towards molecules. It is derived either from normal essential metabolic processes in the human body or from external sources such as **cigarette smoking, ultraviolet rays, chemicals in food and other pollutants**.

As a result, the oxidation process increases. Subsequently there are more free radicals present than can be kept in balance by antioxidants in the body. The free radicals can **accelerate aging** and cause tissue damage in the body. This is associated with a vast number of diseases over time. These include **heart disease, diabetes, stroke, arthritis and cancer**.



Antioxidants are substances that neutralize or remove free radicals by donating an electron. The neutralizing effect of antioxidants helps to protect the body from oxidative stress.



What is Vitexin?

Vitexin is an antioxidant component classified as a flavonoid and better known for its favorable benefits as an antiischemic agent and anti-hypertension. It could also be found in Hawthorn Berry.

HEALTH BENEFITS

Vitexin is an essential antioxidant component in **CELLCODE** which is beneficial towards heart health

Some unhealthy lifestyle choices such as heavy smoking habit, excessive drinking, lack of physical activities; and other risk factors such as diabetes, hypertension, high cholesterol, obesity; could contribute to **cardiovascular** disease like **heart disease** and **stroke**.

Ischaemic Heart Disease

Heart attack is the most horrifying experience. It happens when the heart is not getting enough blood and oxygen due to narrowed heart (coronary) arteries that supply blood to the heart muscle.

Do you know that cardiovascular disease or commonly called heart disease is the leading cause of death in Malaysia?

CELLCODE Benefits for Healthy Heart and General Health

Reduce the Low-density Lipoprotein (LDL) cholesterol level

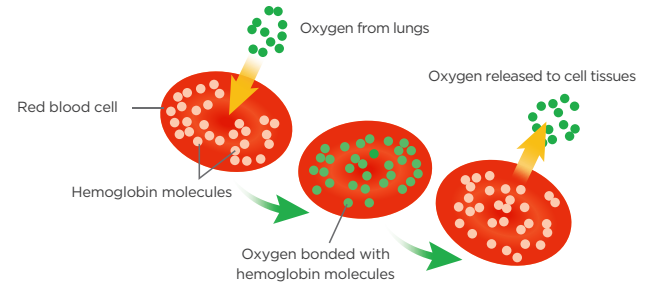
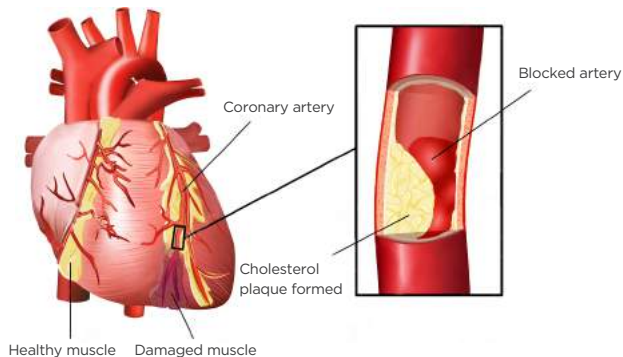
Level of LDL cholesterol could be decreased hence reducing the risk for artery coronary disease.

Improves coronary blood flow

It prevents the blood clots, which leads to heart attack and stroke.

Strengthens the heart

It improves the heart muscle tone, thus it become more efficient and better able to pump blood throughout the body.



Improves energy and fitness level

It helps to stabilize the hemoglobin (Hb) levels in blood and carries oxygen from the lungs to the rest of the body.

Reduces inflammation

Phloretin-G and Vitexin are known to have anti-inflammatory effects and may be used to treat arthritis.

Lowers Creatinine level

It helps to lower the Creatinine level that could impair the kidney functions.

Boosts the immune system

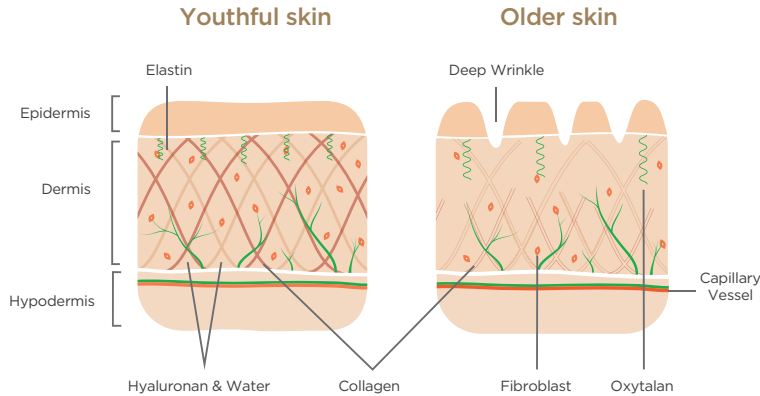
It helps to boost the immune system in the body to defend against infection and illness.

IMPROVED SKIN HEALTH FOR YOUNGER LOOK

Phloretin-G, Ferulic Acid and **Vitamin C** work in synergy to produce the best result in skin protection. This is the secret recipe of **CELLCODE**.

We all know the most obvious signs of aging: dry, rough, scaly, flaky and cracked skin, and these are the result of the **free radical theory**. Other visible signs include wrinkles and freckles.





Reverses the aging process

The high antioxidant capacity in Phloretin-G fights against free radical in the body, and prevents cell damaged. The damage occurs when free radicals steal electrons from fat molecules in the skin cell.

Lightens the dark spots, pigmentation and freckles

Controls level of tyrosinase, a natural enzyme that results in the production of melanin in skin cells.

Improves skin elasticity, keep it firm and moisturized

Phloretin-G prevents **Matrix Metalloproteinase (MMP-1)**; skin disease related enzyme that could damage skin tissue and degrade Dermal Fibroblast.

Fibroblast is active skin replacement and it produce collagen. Collagen and elastin are protein that give effect to firm and tight skin.

Skin protection from UV rays

Topical antioxidant compound containing Phloretin-G, Ferulic Acid and Vitamin C protect skin from the harmful UV rays.

Reduce wrinkles and fine lines

Phloretin-G delays the process of sugar storage in the skin cell which is known as **Advanced Glycation End products (AGE)**. AGE are harmful compounds that are formed when protein or fat combined with sugar in the bloodstream.



CELLCODE is good for health, and could potentially be your solution to building wellness from the inside out of the body. Life-long supplementation in combination with healthy lifestyle will give positive effect to the body.



CELLCODE has been developed with the high standards in a world class facility, and is **GMP** and **HACCP** certified.

AWARDS AND RECOGNITIONS

MARDI has won numerous awards and recognition for the research in *Citrus microcarpa* locally and internationally.



BRITISH INVENTION AWARD 2012
DOUBLE GOLD AWARD (CONSUMER)
GOLD AWARD (INDUSTRIAL)

IENA GERMANY 2013
GOLD AWARD

BIOINNO AWARD 2013
GOLD AWARD

ITEX 2013
GOLD MEDAL
BEST INVENTION (RESEARCH INSTITUTE)
MOST INNOVATIVE PRODUCT AWARD

MALAYSIA ASSOCIATION OF
RESEARCH SCIENTIST 2013
GOLD MEDAL

MARDI SCIENCE & TECHNOLOGY 2011
BEST ARTICLE PUBLISHED
BEST PARTICIPANT



PRODUK BERDAFTAR KKM
MAL190461297C

Journal of Clinical Research and Reports



Heart Disease & Stroke

1. *Planta medica* 43 (12): 396-403 (1981)
Pharmacological investigations on vitexin
2. *The Journal of Clinical Endocrinology & Metabolism* 80(4): 1144-1147 (1995)
Antithyroid effect in vivo and in vitro of vitexin: a C-glucosylflavone in millet
3. *J. Agric. Food Chem.* (2011), 59, 22, 12217-12225
Flavonoids in Tropical Citrus Species

Anti-Aging

1. *Journal of Investigative Dermatology* 125 (4): 826-832. (2005)
Ferulic Acid Stabilizes Solution of Vitamins C and E Doubles Its Photoprotection of Skin
2. *Biological & Pharmaceutical Bulletin* 29(4):740-5 (2006)
3. *Journal of Cosmetic Dermatology* 7:290-297(2008)
Protective effect of a topical antioxidant mixture containing vitamin C, ferulic acid, and phoretin against ultraviolet-induced photodamage in human skin




4. *Experimental Dermatology* 601-608 (2005)
5. *Bioscience, Biotechnology, and Biochemistry* 2368-2373 (2005)
6. *Journal of Agriculture and Food Chemistry* 1201-1207 (2003)
7. *ACS(I) Textbook on Cutaneous & Aesthetic Surgery: Two Volume Set.*
Venkataram Mysore Chapter 71.
Page 753



CELLCODE MALAYSIA

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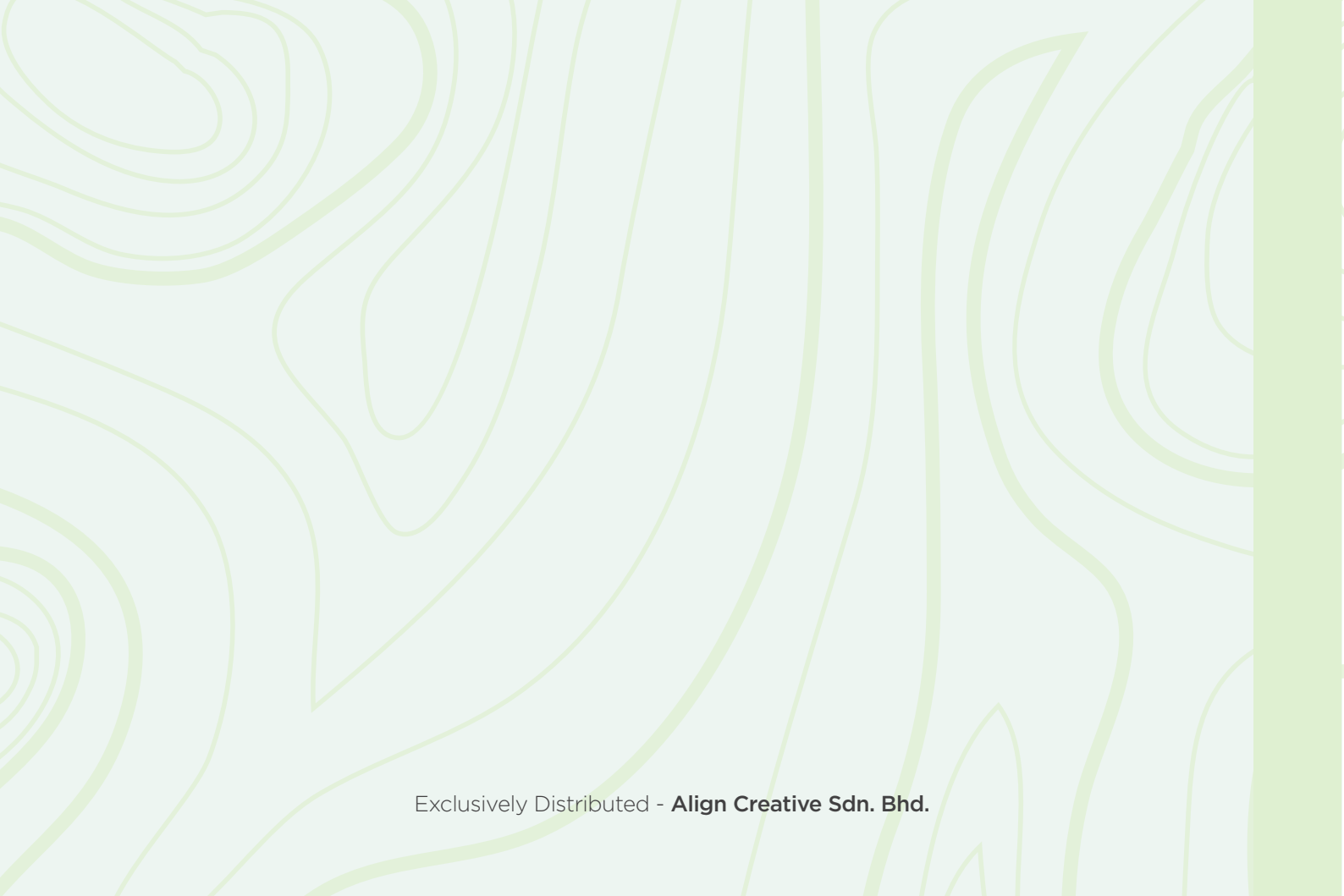
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*"A CellCode a Day,
Goes a Long Way"*



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The background features a light green field filled with organic, wavy, concentric lines in a slightly darker shade of green. These lines flow across the frame, creating a sense of movement and depth. On the far right, a solid, vertical green bar runs from the top to the bottom of the image, providing a structural element to the composition.

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