

Dual function of Pandoradiet™

Slim & Skin

www.pandoradiet.com

Pandoradiet™ has dual functions related to weight management and anti-skin aging effects. Pandoradiet™ is a proprietary extract from an herb known as "*Boesenbergia pandurata*" and can be applied in any formulation as it is highly water soluble.

Generally, if you lose weight, you also lose water and gloss in your skin, which causes the formation of wrinkles.

Pandoradiet™ is a revolutionary and scientifically proven ingredient that can remedy all of these problems, unlike other conventional ingredients, through its dual functions of weight management and anti-skin aging effects.



After 10 years of R&D efforts that involved screening over 1,000 species of natural plants, Our R&D team has finally and successfully identified *Boesenbergia pandurata*, which has dual functions of weight loss and anti-skin aging effects.

For weight management, Pandoradiet™ reduces body weight and body fat, improves blood sugar and lipid profile, and increases muscle mass.

For anti-skin aging, Pandoradiet™ reduces wrinkles and improves skin moisture and elasticity.

Boesenbergia pandurata is native to Asia and is known as finger root as its root resembles human fingers in shape. *Boesenbergia pandurata* is an edible plant, and its root is widely consumed as a food in Asia. In many Asian countries, people have traditionally consumed *Boesenbergia pandurata* as a pickle, curry, or drink.

WEIGHT MANAGEMENT + ANTI-SKIN-AGING



Mechanism of Dual Function of Pandoradiet

Weight management

Pandoradiet™ accelerates fat burning by promoting beta oxidation as a result of CPT activation and ACC inhibition.

This is accomplished through **activation of the AMPK as well as PPAR α/δ signaling pathways**.

To confirm these effects, we fed a high fat diet to 4-week-old rats to induce obesity.

We next administered Pandoradiet™ 200 mg per kg of body weight for 8 weeks and then measured body weight and body fat changes in obese rats.

Body fat was analyzed by CT scanning. The results showed that in the group fed only a high fat diet, body fat was 66.6%. In the group fed a high fat diet and Pandoradiet™, body fat was reduced to 44.7%. This result indicates that Pandoradiet™ intake reduced fat by 32.9% compared to high fat diet.

Pandoradiet™ reduced white fat by 19% and increased brown fat by 88% compared to high fat diet treatment.

In general, white fat actually accumulates during obesity while brown fat burns white fat when activated, to maintain body temperature.

In the case of whole body fat, Pandoradiet™ reduced total fat content by 13% compared to high fat diet.

The size of fat cells was also reduced by about 45% upon Pandoradiet™ intake compared to high fat diet.

Pandoradiet™ also increased muscle mass by 117% compared to high fat diet. In terms of anatomy, the larger the muscle mass is, the higher the basal metabolic rate can be.

In a treadmill test, the Pandoradiet™ group showed 340% increased exercise time than the high fat diet group and displayed restored endurance almost to the level of the normal diet group.

Anti-skin-aging

Collagen is generated in the skin through increased production TGF-beta, a procollagen signalling factor, which can be stimulated by Pandoradiet™.

Pandoradiet™ was found to prevent collagen from being broken down, thereby increasing collagen content in the skin, by inhibiting expression of MMPs, which destroy collagen.

Pandoradiet™ increased TGF-beta expression, which was hampered by UV light.

This was confirmed **reduction of ERK, JNK, and p38 MAP kinases**, which were increased by UV light. We determined the effects of Pandoradiet™ on skin damage induced by UV light irradiation in an animal model.

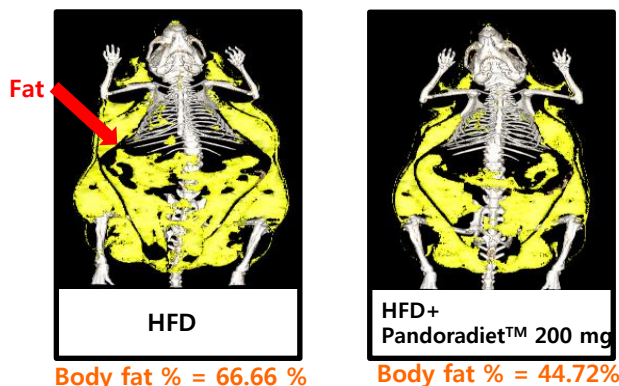


Figure 1. Whole-body CT of C57BL/6J mice fed a HFD (control) or a HFD and Pandoradiet™.

We also found Pandoradiet™ interesting effects about white fat and brown fat tissues in the body.

The test was performed on 6-week-old hairless mice. Pandoradiet™ was fed at 100 mg or 200 mg per day for 12 weeks. The test results showed that Pandoradiet™ improved wrinkling induced by UV light irradiation in a dose-dependent manner. Especially, at 200 mg of Pandoradiet™, wrinkling was almost reduced back to normal levels.

DEXA scan enabled us to measure total fat, trunk fat, and android fat distributions. In the Pandoradiet™ group, total fat, trunk fat, and android fat were reduced by 136%, 125%, and 123%, respectively, compared to the placebo group. * $p < 0.05$; ** $p < 0.01$

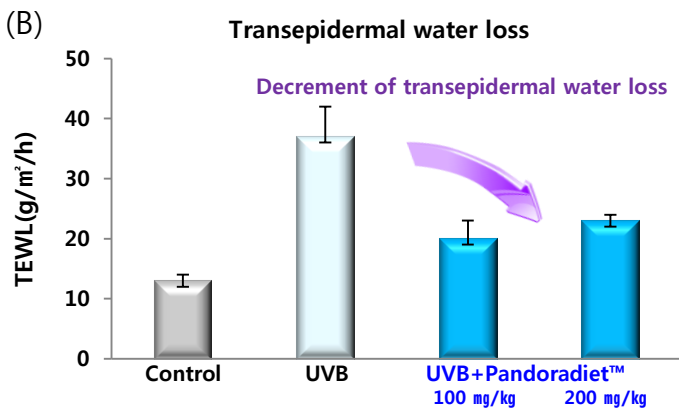
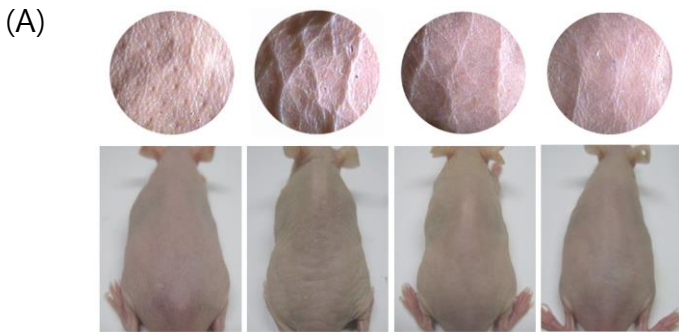


Figure 2. (A) Effects of BPE on wrinkle formation in ultraviolet B (UVB)-irradiated hairless mice. (B) Effects of BPE on skin barrier function in ultraviolet B (UVB)-irradiated hairless mice.

In addition, we analyzed the effect of Pandoradiet™ on skin hydration. We found that Pandoradiet™ intake increased skin moisture.

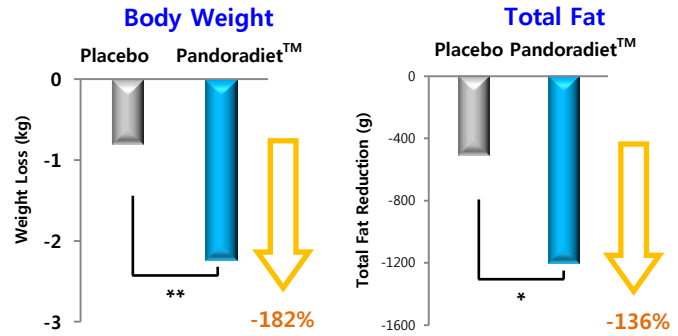
We also measured TEWL, which is a quantitative measure of how much moisture escapes from the skin, in an animal study. It was found that Pandoradiet™ intake effectively reduced TEWL and improved skin hydration.

The results of a human clinical study on Pandoradiet™

Weight management

A double-blind, randomized, and placebo-controlled clinical study was carried out on normal subjects. In detail, 150 people with an average body weight of 71.9 kg and an average BMI of 27.2 participated in the study. They were administered 600 mg of Pandoradiet™ per day for 12 weeks.

In the Pandoradiet™ group, body weight and BMI were reduced by 182% and 197%, respectively, compared to placebo group.



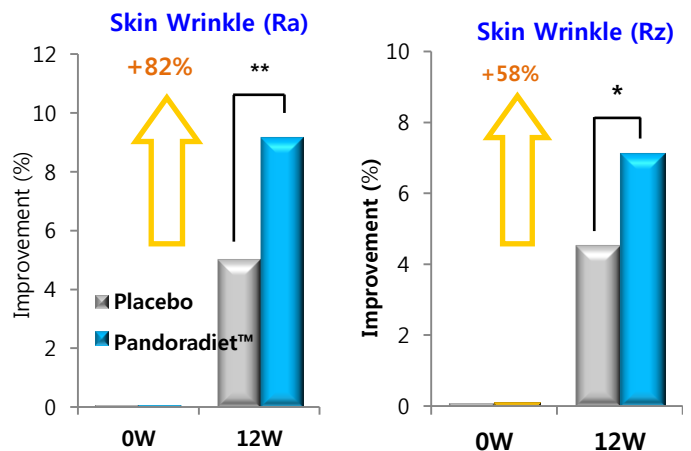
Anti-skin-aging

To test Pandoradiet™'s anti-skin aging effects, a human clinical study was performed on 92 healthy women with a skin moisture content of less than 48 a.u. and a wrinkle score above level 4. Study design was double-blind, randomized, and placebo-controlled, and Pandoradiet™ was administered at 600 mg per day for 12 weeks.

As shown in the photos, wrinkling around the eye region was reduced upon Pandoradiet™ treatment.

Skin moisture and skin glossiness in the Pandoradiet™ group improved more by 38% and 47%, respectively, compared to the placebo group.

Pandoradiet™'s effects on skin wrinkling and elasticity were quantitatively measured using parameters. Skin wrinkle parameters, Ra and Rz, improved by 82% and 58%, respectively, compared to placebo, whereas skin elasticity increased by 22%.



In conclusion, Pandoradiet™ not only shows weight management efficacy but also resolves skin trouble accompanied by weight loss by activating the AMPK as well as p-par alpha/delta signaling pathways. Therefore, Pandoradiet™ is a revolutionary ingredient with dual functionality, which conventional weight management ingredients lack.