

# BUCKWHEAT WAX

## Anti-Puffiness, Face "Contouring"

**Heredity, family predisposition, age or precarious hygiene conditions are the factors responsible for the appearance of puffiness under the eyes.**

The eye contour is the most fragile area of the face as the skin is particularly thin. Constant movements, sensitivity to outside stress (wind, sun, pollution, etc.) results in the appearance of the first signs of skin ageing and fatigue. Puffiness under the eyes is formed by accumulation of fat tissue under the skin of the lower eyelid.

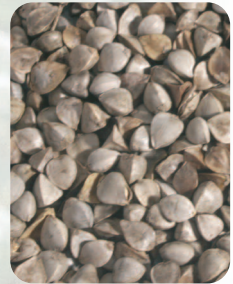
In order to reduce puffiness under the eye, CODIF Recherche & Nature has developed a preservative-free active ingredient: **BUCKWHEAT WAX**.

Native to the East, buckwheat or saraceno is a cereal of the Polygonacea family.

This plant is cultivated for its seeds consumed traditionally in human and animal consumption in all the countries of the world.

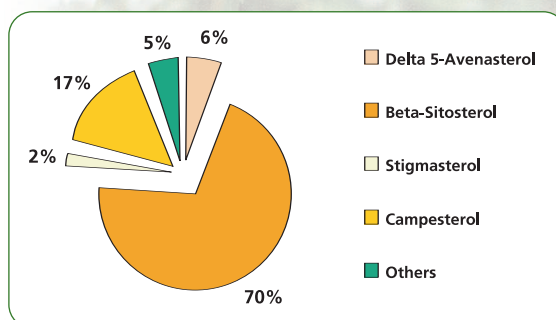
Other names: Bucail or carabin, Buchweizen (Germany), Trigo sassaceuo (Spain), Grano saraceno (Italy).

**BUCKWHEAT WAX** is a wax obtained from *Polygonum fagopyrum* seeds by means of supercritical CO<sub>2</sub> extraction in the presence of a vegetable oil followed by the addition of a hydrogenated vegetable oil. Supercritical CO<sub>2</sub> offers the advantage of being inert, colourless, odourless and non-toxic. It makes it possible to produce very stable solvents free from residual solvents.



### The analysis of the composition of BUCKWHEAT WAX

Breakdown of the main phytosterols present in **BUCKWHEAT WAX**



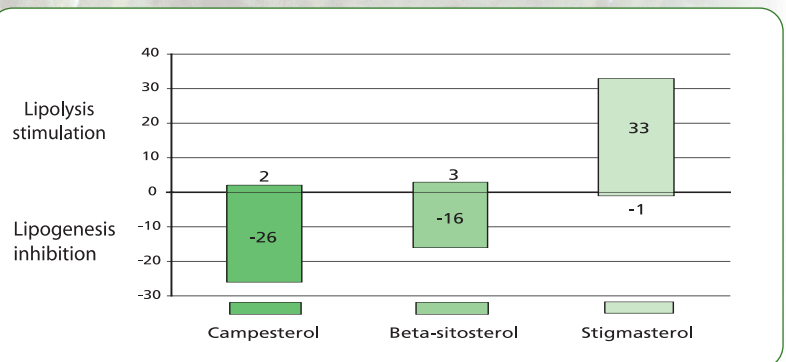
The analysis of the composition of **BUCKWHEAT WAX** demonstrates a very beneficial concentration of **phytosterols**, particularly beta-sitosterol, and **unsaturated fatty acids**.

#### *In vitro* test

#### Effects of phytosterols

We tested the lipolytic (clearance) and anti-lipogenesis (anti-storage) action of the phytosterols present in **BUCKWHEAT WAX** individually.

- Campesterol and Beta-sitosterol inhibit lipogenesis.
- Stigmasterol does not display an effect on lipogenesis, but, on the other hand, it stimulates lipolysis.



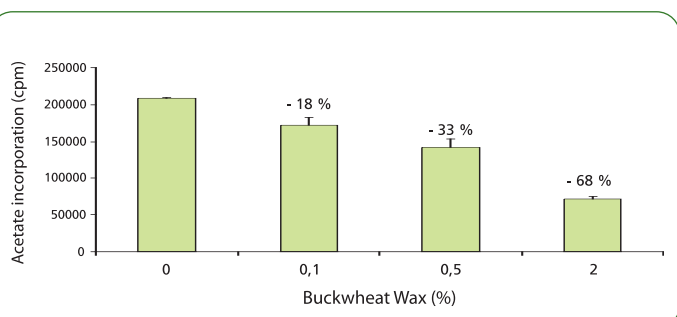
#### *In vitro* test

#### Effect on lipogenesis

**BUCKWHEAT WAX** contains 3 phytosterols.

Tested at final concentrations of 0.1%, 0.5% and 2%, it inhibits the incorporation of acetate in human adipocytes and therefore the storage of new lipids.

The effect obtained with **BUCKWHEAT WAX** is superior to that of the isolated phytosterols. Therefore, its inhibitory effect is probably associated with a cumulative effect of the phytosterols and/or an effect of other compounds which promotes the effects of sterols such as unsaturated fatty acids.



**BUCKWHEAT WAX** also contains triglycerides obtained from vegetable oils, saturated fatty acid-based compounds, i.e. caprylic acid (C8:0), capric acid (C10:0), palmitic acid (C16:0) and stearic acid (C18:0).

The Buckwheat extract essentially consists of unsaturated fatty acids:

- 30% oleic acid (C18:1)
- 40% linoleic acid (C18:2)
- and very few saturated acids
- 15% palmitic acid (C16:0).

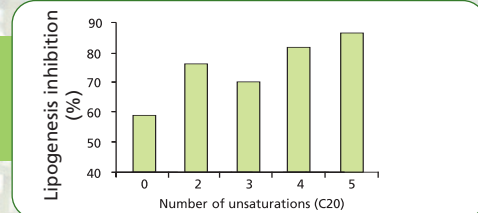
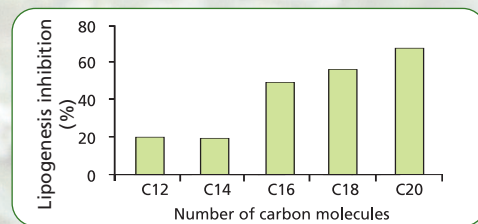
Free fatty acids represent up to 10% of the total fatty acids. They essentially consist of C18:1 and C18:2.

### In vitro tests

#### Effect of some fatty acids

The inhibitory action of fatty acids on lipogenesis depends on the carbon chain length and the number of unsaturations.

- More the chains of fatty acids are long, minus the storage of fat tissue in the adipocytes is favoured.
- For the same carbon chain length, more the number of unsaturations is important more the lipogenesis is inhibited.



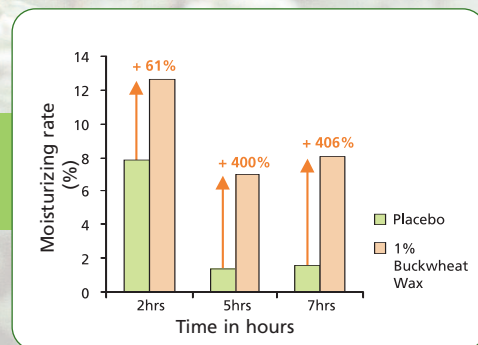
### Clinical test

#### Moisturising effect

Nine volunteers between 23 and 36 years of age applied an oily mixture containing 1% BUCKWHEAT WAX on the forearm.

The skin moisturisation level was measured by means of corneometry.

**BUCKWHEAT WAX** increases the moisturisation of the upper layers of the epidermis in a statistically significant manner ( $p < 0.05$ ) with reference to the placebo (oily mixture only).



### Clinical test

#### Anti-puffiness effect

Fifteen volunteers applied an oily mixture containing 1% BUCKWHEAT WAX twice a day (one application on the right or left eye contour in the morning and one application in the evening) for 28 days.

This study consisted of evaluating, versus a placebo (oily mixture only), the anti-puffiness effect of the product by means of videomicroscope image acquisitions, and by means of image analysis.

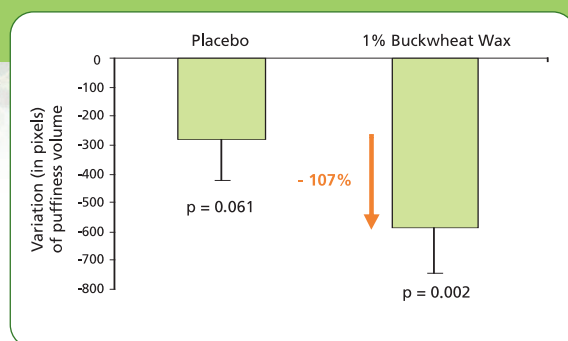
- **BUCKWHEAT WAX** decreases the volume of puffiness significantly ( $p < 0.05$ ).
  - Effect observed on 80% of volunteers at the end of the test and up to -1769 pixels (equivalent to a -10% reduction in puffiness volume during treatment) in one volunteer.
  - The effect obtained with the placebo demonstrates the positive action of the light massage performed twice daily.
- BUCKWHEAT WAX** makes it possible to obtain an additional effect.



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With **BUCKWHEAT WAX**, forget sleepless nights and how difficult it is to get up in the morning!

INCIUSA	INCI EUROPE	CAS No.	EINECS No.
Caprylic/capric triglyceride (and)	Caprylic/capric triglyceride	65381-09-1	265-724-3
Hydrogenated vegetable oil (and)	Hydrogenated vegetable oil	68334-28-1	269-820-6
Polygonum fagopyrum seed extract	Polygonum fagopyrum extract	89958-09-8	289-631-2

Corresponding technical files: D.Tech. 04-037GB, D.Tech. 05-034GB, D.Tech. 05-061GB.