Enlightening Indian kudzu

Reinforcing skin radiance

A STORY

The Indian kudzu | *Pueraria tuberosa, Fabaceae*

Another famous Ayurvedic species

As a famous medicinal plant from Ayurveda, the Indian kudzu or Nepalese kudzu has many names in the different Indian dialects and languages. Indeed, it is a climber that flowers in spring and grows widely in deciduous forests on the whole Indian continent until 1200 m. In India, it is also cultivated to fertilize soil, to feed cattle; horses can eat tubers. But only roots and leaves are used to prepare remedies; roots could decrease fever, be galactagog, emollient, and would be an ingredient of poultices. Indian kudzu is told to be tonic and aphrodisiac.

Key points

An active plant cell
Developed to deliver the highest amount of original active molecules.

A high tech natural ingredient
Created to preserve and improve the identity and the benefits of a natural product.

A double lightening action
Increase general radiance at the epidermis level

Because skin radiance is often modified by many factors - like environmental aggressions, ageing, our way of life, it is necessary to act in the same time at different skin levels. To get a skin brightener, more radiant, longer..

PRODUCT BENEFITS

Brightening

Lightening

Helps to prevent and reduce brown spots.

Mattifying

Contributes to decrease the shining of complexion.

Radiance

Helps skin to get a tone more radiant, by detoxifying and oxygenating skin cells. Improves skin metabolism.

To be used in skincare or make-up products such as cream, fluid, serum, balm, lotion, milk, foundation, concealer, etc. In any cosmetic or skincare product intended to brightening skin.

NAOLYS

Related products | INSIDE LIGHT POET'S NARCISSUS | FIRST LIGHT SNOW LOTUS | BRIGHT LIGHT MADONNA LILY

HOW IT WORKS

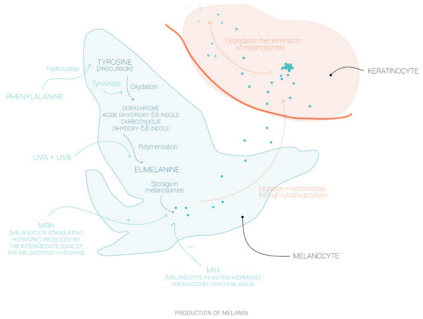
Enlightening Indian kudzu: acting on sources of skin brightening in the epidermis

Enlightening Indian kudzu rebalances various biochemical reactions at the level of the epidermis. First it limits melanogenesis (that generates pigmentation) at different steps: il decreases the synthesis of melanin by limiting the action of two precursor chemicals of the production of melanine (phenylalanin and tyrosin), then it holds back the migration of melanosomes in keratinocytes. In the same time, it helps to complete cell respiration, therefore reinforces the elimination of toxins. And it diminishes the size of lipid molecules, that come to the surface of epidermis, by interfering from the beginning of their generation cycle. Thanks to those different actions, epidermis gets back its pigment and lipid balance and maintains its original metabolisme.

in vitro testing results

Study of the melanogenesis

The synthesis of melanin begins with an amino acid, tyrosine, which is catalysed by the enzyme, tyrosinase, itself synthesized in the form of a inactive precursor which is activated when the melanocytes are stimulated by alpha-MSH via cAMP. Tyrosine is transformed into DOPA (3,4-dihydroxyphenylalanine) which is then oxidized into DOPAquinone, which are oxidised into indole compounds. After several other chemical reactions, these indole compounds bond to each other to form eumelanin, a brown-black pigment. Pheomelanin, the second type of melanin synthesized by melanocytes, is a yellow-red colour, and is formed from the reaction of cysteine, a sulphur-containing amino acid, with DOPAquinone.



Naolys has chosen to study three key stages in the synthesis of eumelanin and the result as the quantity of global melanin.
The neosynthesis of [14C]L-Phenylalanine

The neosynthesis of [14C]L-Tyrosine from the transformation of [14C] L-Phenylalanine: this informs us of the capacity of the melanocyte to convert phenylalanine into tyrosine outside the direct capture of tyrosine from the extracellular environment.

Tyrosinase activity: this informs us of the transformation of tyrosine into melanin. It consists of the transformation of tyrosine from the direct capture from the extracellular environment or from the transformation of phenylalanine. To recreate natural conditions as effectively as possible, Naolys also induced an increase in the melanocytes activity through alpha-MSH.

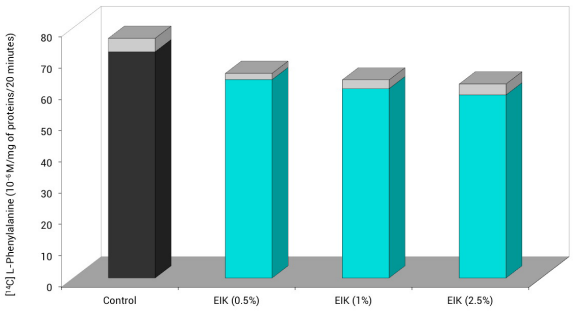
In its studies, Naolys used co-cultures of melanocytes/keratinocytes, which correspond more closely to the actual situation in the skin, in which the two cell types are very close. In fact, a melanocyte combined with several keratinocytes forms an epidermal melanin unit. Measurements were taken in the melanocytes.

Technical information Formulating Enlightening Indian kudzu

INCI name of cells	**form**	**aspect**	**concentration**	**dispersible**
pueraria tuberosa leaf cell extract	cells (20%) in glycerin or in sunflower oil (80%)	liquid	starting at 0.5%	in any formulation

Study of the melanogenesis

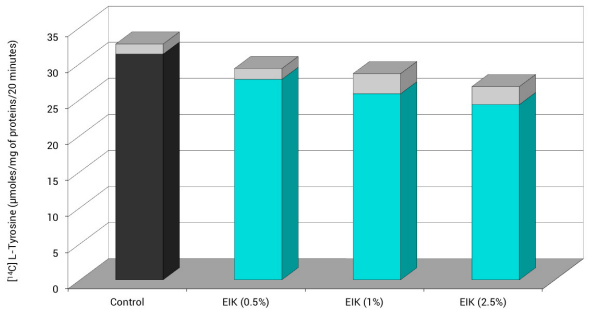
Study of the capture of the [^{14}C] L-Phenylalanine



Decrease of the capture of the [^{14}C] L-Phenylalanine

→ At concentrations of 0.5%, 1% and 2.5%, significant decrease of the capture of the [^{14}C] L-Phenylalanine during 20 minutes, respectively by 12%, 16% and 19%

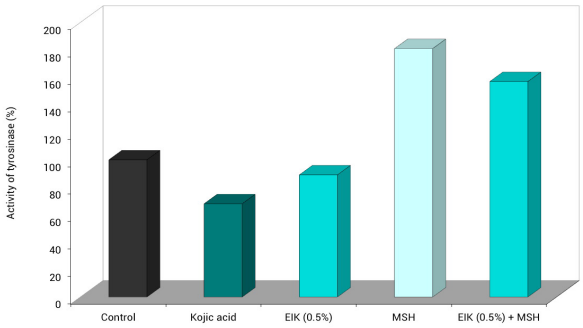
Study of the capture of the [^{14}C] L-Tyrosine



Decrease of the capture of the [^{14}C] L-Tyrosine

→ At concentrations of 0.5%, 1% and 2.5%, significant decrease of the capture of the [^{14}C] L-Tyrosine during 20 minutes, respectively by 11%, 18% and 22%

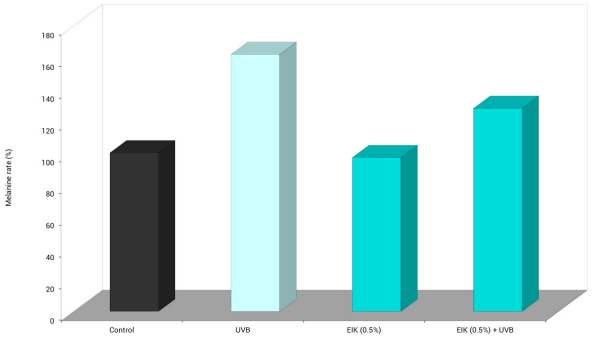
Evaluation of tyrosinase activity



Decrease of tyrosinase activity

→ At the concentration of 0.5%, decrease of the activity of the tyrosinase by 24%

Study of melanin



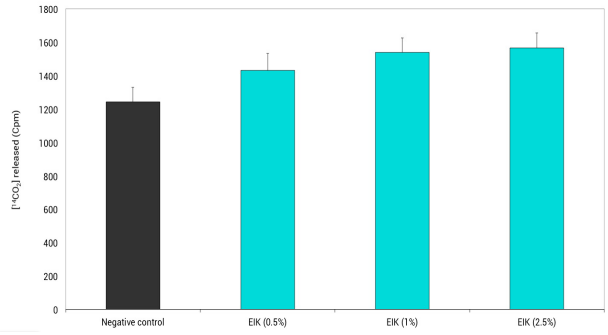
Decrease of melanin rate

→ At the concentration of 0.5%, decrease of the melanin rate by 34%

Study of cellular respiration

Cellular respiration is a redox chemical reaction which supplies energy to cells to grow and to function. Cells produce energy with glucides, as ATP through cell respiration. The activity of Enlightening Indian kudzu on the cell and respiratory metabolism has been evaluated by the metabolization of glucose by the cells of the epidermis in physiological and hypoxia conditions.
In vitro hypoxia conditions induce deep alterations of cell electromechanical functions, with an increase in the production of lactate, a fall in the quantity of ATP, ADP, and a loss of LDH. The reoxygenation of hypoxiated cells (a reversible state) normalizes the loss of lactate, induces a resynthesis of ATP and a reduction in the release of LDH. The decrease in superoxyde dismutase and glutathion peroxydase activity is reduced

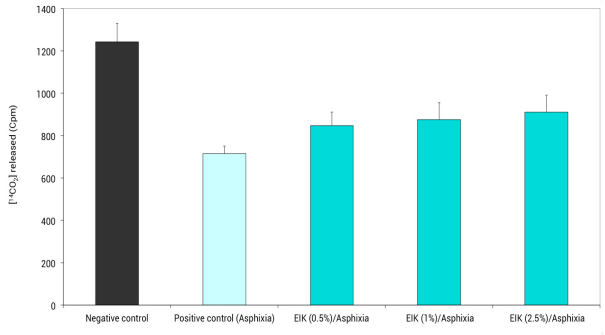
Study of cellular respiration in physiological conditions



Increase of release of CO_2

→ At concentrations of 0.5%; 1% and 2.5%, increase of the release of CO_2 respectively by 15%, 24% and 26%

Study of cellular respiration in asphixia conditions



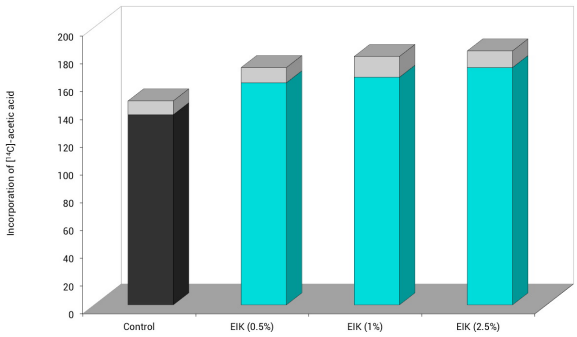
Increase of release of CO_2

→ At concentrations of 0.5%; 1% and 2.5%, after 24 hours, increase of the release of CO_2 respectively by 18%, 23% and 28%

Study of the lipids in the epidermis

The corneum stratum contains a lot of different types of extra cellular lipids: fatty acids and ceramides, sterols and triglycerids. They are arranged in multiple broad sheets and their function is to create a barrier to protect our body from outside.
Cyclic AMP (adenosine monophosphate) is produced from ATP and acts as a second messenger with hormons or neurotransmitters, it induces the regression of cellular lipoidosis by altering the intracelullar lipid metabolism.
An increase of cyclic AMP, fatty acids and glycerol rates translates a degradation of lipids (triglycerids) that are responsible for a shiny complexion.

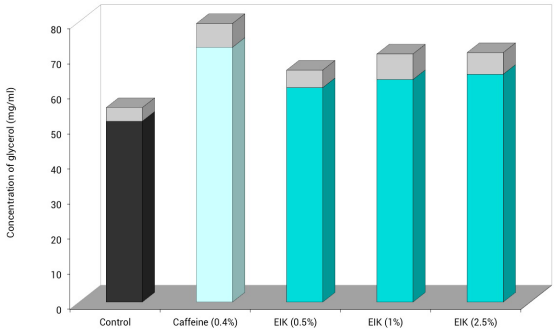
Study of the free fatty acids



Increase of free fatty acids

→ At concentrations of 0.5%, 1% and 2.5%, increase of the total free fatty acids rate respectively by 17%, 20% and 25%

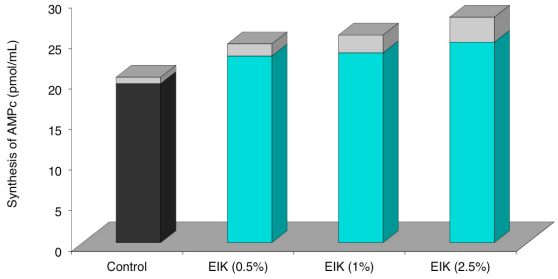
Study of glycerol



Increase of glycerol rate

→ At concentrations of 0.5%, 1% and 2.5%, increase of glycerol rate respectively by 19%, 23% and 26% compared to caffeine (+41%)

Study of cyclic AMP



Increase of synthesis of cyclic AMP

→ At concentrations of 0.5%, 1% and 2.5%, increase of synthesis of cyclic AMP respectively by 17%, 19% and 26%