

## Will Phytic Acid Replace Hydroquinone?

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The treatment of benign hyperchromic lesions of the skin is probably the biggest challenge to health care professionals and requires the correct training of all involved in skin care treatment.

The key to a successful treatment, is the knowledge of the physiopathology of lesions and a complete command of the pharmacodynamics of chemical substances which are capable of blocking the formation of melanin, and the smooth exfoliation of the skin. On the other hand, a wide medical knowledge base is fundamental, to allow an accurate diagnoses to be made, between a benign hyperchromic lesions of the skin, and those which are malignant or with the propensity to become malignant.

**Melanin** is a brown coloured pigment produced by the melanocytes, which is located in the basal layer of the skin, and is normally distributed by cells from other layers, which make up the epidermis. Occasionally, melanin can also be deposited in the dermic layer of the skin, which can create a difficult problem, from a therapeutic point of view. It is important to establish where the melanin is located so that a suitable therapy may be chosen, and to trace a prognosis of the treatment. The examination of the skin, with the help of a Wood's Lamp, can also offer a certain degree of safety in determining the location of the melanin within the skin.

**Hydroquinone** was for many years the chosen substance for blocking the production of melanin, and with the help of chemical exfoliation substances, such as Glycolic Acid and Retinoic Acid, was demonstrated to be a very efficient skin lightning agent. During the past decade, Hydroquinone has been gradually replaced by new chemical lightning substances, such as Kojic Acid and Phytic Acid, because of the instability of products that use hydroquinone (fast oxidation). Recently, documentation has appeared showing that hydroquinone is cytotoxic and destroys the wall of the melanocytes, causing a definitive lesion, called **residual achromia**, and has no possible treatment. (Fig. 1,2)

**Kojic Acid** was proposed as a tyrosinase inhibitor in the beginning of the 90's, and offers the same benefits of hydroquinone, but without the cytotoxicity, however, its instability is still a problem yet to be solved.

Phytic Acid **was first used clinically in early 1995 by the author as a skin lightning agent. (Fig 3,4).**

**Basically it works by blocking the entrance of iron and copper in the formation of melanin. Phytic Acid is mainly found in the cereal seeds and, fruits seeds, and for years has been used as an anti-oxidant in the food industry, the alcoholic beverages industry, the auto industry (an anti-corrosion product for car radiators) in Engineering and Architecture (protecting metal surfaces against oxidation) and it is being widely used in Odontology (increases the resistance of odontologic cements and can increase the resistance of teeth against periodontal diseases)**

As well as acting as a Melanin formation blocker, Phytic Acid was described by Pugliese (Peter Pugliese, MD. Philadelphia, USA) as an iron specific antioxidant and he demonstrated its chelated action on iron, copper and calcium. This antioxidant action is important to the skin, because oxidation stress is an important factor in the reduction of the inflammatory process, the precursor to postinflammatory hyperpigmentation lesions. (Fig 5,6,7,8)

Phytic Acid 2% to 4%, has proven to be very efficient in the treatment of epidermic melasmas, when it is associated with Glycolic Acid or Retinoic Acid.

Finally, it is vital to stress the importance of the moisturising properties of creams and lotions containing Phytic Acid and the high degree of stability of such products (about 5 years)