

# Judee's egg yolk powder, phospholipids and Zingiberaceae spp extract in the shape of nanosomes are for chance a great relief for Elastoderma in youngsters

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Sir,

Pseudoxanthoma elasticum (PXE) or Kornberg-Oikarinen's elastoderma characterised by the phenomenon of Cutis laxa—a very rare genodermatosis often associated with ocular and cardiovascular manifestations—is considered a paradigm disease and includes even chronic inflammatory syndrome [1,2].

The symptoms of PXE are the result of a sinister mineralization and fragmentation of the elastic fibers: the exact pathophysiology of this phenomenon is incompletely understood, because it is utterly incomprehensible how elastic fibers result exaggeratedly mineralized even if when Calcium should be totally absent, especially in childhood [3].

Effectively pseudoxanthoma elasticum affects the skin first, often in childhood or early adolescence.

Small, yellowish papular lesions form and cutaneous laxity mainly affect the neck, axillae (armpits), groin, and flexural creases (the inside parts of the elbows and knees).

Skin may become lax and redundant. Many individuals have “oblique mental creases” (horizontal grooves of the chin) [4].

It is well documented that in old age the mineralisation of the elastic fibers is chiefly duo to a deposition of Calcium with a coordination number very high (it is supposed to be equal to 9, and this may demonstrate

the resulting in the formation of osseous material in soft tissues).

But the AA made up their mind to investigate upon the chance of a different coordination number of Calcium in younger and the explanation could be easily retrieved in the examen of the dermal tissue of a young girl who has always suffered from this type of elastoderma [5].

Effectively the girl showed a deep wound close to the inner thigh she procured by an adventitious accident, so that the AA could determine the shape of the calcium crystals deposited in the whole tissue subjecting the sample of the dermal debris to a transmission electron microscope (TEM) [6].

After all the routinary proceedings (dissolution in acetone, sous-vide sonication, deposition onto a carbon grid and final measurement at 140Kv) crystals of calcium salts revealed evident amounts of calcite, where the shape seems to be optahedral and the coordination numer equal to 6.

The AA will submit, when it will be possible in a next future, another tissue sample from an old individual to the same microscopical measurement even if they are almost sure yet that the outcoming results should reveal the presence of aragonite crystals, where the shape should be orthorombic and the coordination number equal to 9.

In other words mineralised elastic fibers in cutis laxa should present calcite crystals, whenever the patient

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is young and on the other hand aragonite crystals whenever the patient is old.

All the aforesaid theories shall demonstrate that the coordination number of the alkaline-earth ion is culprit of the sclerotisation and toughness of the elastic fibers in elder, so that derm results crackable and quasi-osseous, meanwhile in young girls dermis is characterised by flaccidity (cutis laxa) [7].

This fact depends strictly from the odd mineralisation of GAGs and elastin, so that the proposal of an emulsion W/O (owing to the lipid affinity to skin) made up with nanosomes constituted by phospholipids (or ceramides) and Judee's egg yolk powder and an antinflammatory plant as Zingiber spp rhizomes glyceric extract could represent a glorious remedy for this concern.

Thermal spring waters (TSW) are commonly used as active ingredients in cosmetics. Their biological activities directly depend on the ionic composition of the spring. However, in order to exhibit beneficial properties, the minerals need to reach viable skin layers.

A caucasian girl (27 years old) presenting an evident elastoderma in the inner thigh (where recently underwent a deep accidental wound).

She well agreed to test the fine emulsion for 4 days.

The spring water is collected close to Pisa (Tuscany) from a little cemetery standpipe in the Municipality of Vicopisano.

The nanoemulsion is made thanks three essential steps:

1. Dissolution of lipids in an organic solvent;
2. Drying-down of the resultant lipidic solution from the organic solvent;
3. Hydrating the lipid with an aqueous media (followed by agitation/stirring);

In a cosmetic system the volatile solvent par excellence could be a ethanol/methanol or a chloroform/methanol mixture and the dissolution should comprehend phospholipids and egg yolk powder (a superb surrogate for cholesterol).

Drying down of the surnatant lipidic solution should be driven by the aids of the thin-film hydration technique (the so-called Bangham method) that in effect is the oldest method, most common, but

simplest used for the preparation of such a nanosomal W/O microemulsion.

The final hydration should be effectuated by the solubilisation of the compound obtained in simplest spring water at 36.8°R containing 12% of Zingiber spp glyceric extract, followed by strong stirring (10000 rpm).

The formula shall be the following:  
phospholipids 12; Judee's egg yolk powder 12; Zingiber aurantiatum glyceric extract 12; Spring water q.s to 100.

Let's recall that this water is extremely rich in Calcium and is the water used for preparing the nanoemulsion.

Ca<sup>2+</sup> penetrates skin very well and encapsulating TSW into a microemulsion (TSW/O/W) increases skin absorption of the cation maintaining the Ca<sup>2+</sup> ratio equal to that of TSW in each skin layer. The dermal absorption of Ca<sup>2+</sup> from the emulsion guarantees the total absorption of Ca<sup>2</sup> shifting Ca<sup>9</sup> or Ca<sup>6</sup> departs all skin layers.

To evaluate the results of the firming and lifting effetc of this microemulsion, the AA employed a NMR-relaxometer where the scores were plotted as T1 (longitudinal magnetization in ms) and T2 (transverse magnetization) (Tables 1 and 2).

Measurements were made after 2 hours, 24 and 96 hours and these are the values:

It is self evident that there is a valuable increment of the T1 during 4 days and parallel decrement of T2.

Dermis finally results firmer and bonny after the treatment.

It is important to stress that the same emulsion made up with normal or demineralized water yields to different results (lower T1 and higher T2 after 4 days).

**Table 1:** Values of longitudinal magnetization of the inner thigh of the case

The girl (27 y.old):initial score before treatment	T1 after 2 hours	T1 after 24 hours	T1 after 96 hours
67	89.54	90.00	95.06

**Table 2:** Values of transverse magnetization of inner thigh of the case)

The girl's original score	T2 after 2 hours	T2 after 24 hours	T2 after 96 hours
67	8,5	7,16	6,21

## Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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