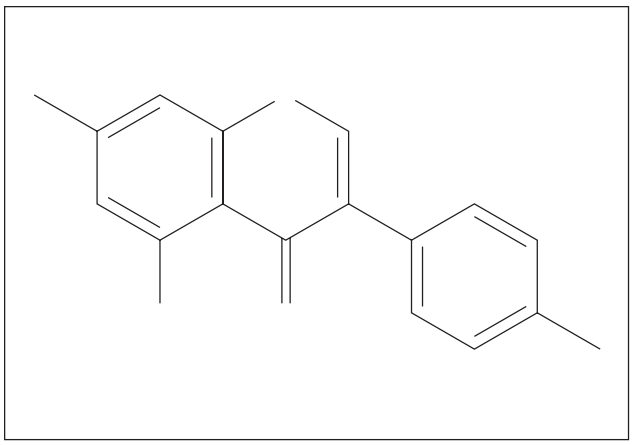
THE SCIENCE SUPPORTING TITRATED EXTRACT OF CENTELLA ASIATICA

Titrated Extract of Centella Asiatica (TECA) is a reconstituted mixture of three triterpenes extracted from the plant and is being used in Europe in wound healing drugs. TECA has been shown to stimulate collagen synthesis in fibroblast cultures and to increase the tensile strength of tissues.

Centella asiatica (also known as gotu kola, tiger grass and indian pennywort) is a perennial creeping plant which grows spontaneously around the Indian Ocean. The use of centella asiatica in the management of dermatological conditions has a long tradition in its native areas where it is used to support faster healing of small wounds, chaps and scratches, superficial burns and, as an oral preparation, for atonic wounds and hypertrophic healing. Centella also has been used traditionally as an anti-inflammatory, particularly for eczema, and also for minor itching and insect bites. Paradoxically, centella asiatica appeared relatively late in modern Western medicine, making its entrance in the Codex only in 1884. The first dry extract was not produced until 1941, three years before the triterpenoids were isolated by P. Boiteau in 1944.

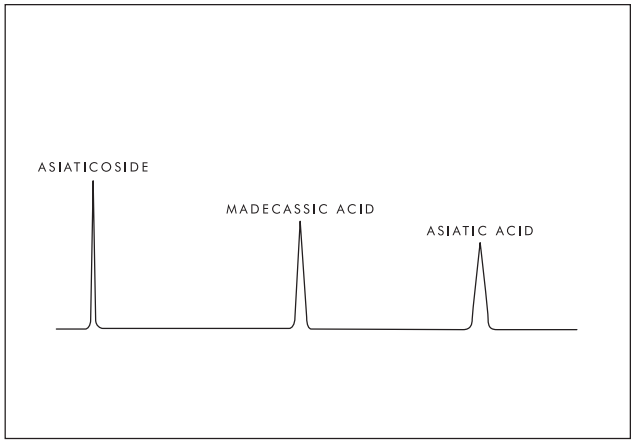
The active constituents of centella asiatica are pentacyclic triterpenoids which are found as genins (asiatic and madecassic acid) and heterosides (asiaticoside and madecassoside). The triterpenoidic molecules are particularly interesting due to their regulating and activating functions, which act on the collagen present in numerous organs.

TECA



The TECA is a perfectly standardized extract of centella asiatica of pharmaceutical quality. Isolated in purified fractions, free genins (asiatic and madecassic acids) and asiaticoside, these active ingredients are combined in constant proportions to guarantee optimal activity.

The TECA was traditionally used in pharmaceutical applications. Administered in ointments, powders, or in tablet form, TECA proved very successful in the treatment of burns, scars and wound healing defects. Studies showed that wound chambers to which TECA had been applied were characterized by increased dry weight, DNA, total protein, collagen, and uronic acid contents. Peptidic hydroproline was also increased, showing an increased remodeling of the collagen matrix in the wound. Asiaticoside exerted a preferential stimulation of collagen synthesis and was active at low doses only. In addition to collagen, the three components were also able to stimulate glycosaminoglycan synthesis[1] (glycosaminoglycan synthesis was also shown in a study by DelVecchio et al, 1984).



In skin, the major components are collagens type I and III. Skin aging is related mainly to a decrease in type I collagen levels.[2] which also plays a major role in wound healing. Since the late 1980s, numerous studies have been conducted regarding the stimulation of collagen synthesis in human skin fibroblasts by either asiatic acid, madecassic acid, asiaticoside, or a combination of all three.[2,3,4,5] The results produced in these studies vary to the effect that the collagen synthesis effect was associated with asiatic acid only in one study, but was shown to be stimulated by all components in others. The reason for these variations is not known and could be associated with the test methods and analyses; however, it is clearly undisputed that the main constituents of centella asiatica increase collagen synthesis. It is interesting to note that in one study, the level of collagen I secretion was higher for each individual component as well as for the mixture in the presence of ascorbic acid.

Some of the test results are depicted below.

Collagen I Ng/10,000 fibroblasts per 48 hrs	Medium +DMSO	Madecass. Acid 4.5mg/ml	Asiatic Acid 4.5mg/ml	Asiaticoside 6mg/ml	Mixt. (1) + (2) + (3)
Secreted	470 +/- 97	1362 +/- 82 (+189%)	1597 +/- 199 (+239%)	1597 +/- 245 (+231%)	1769 +/- 45 (+276%)
Cell-associated	183 +/- 43	158 +/- 29	150 +/- 19	140 +/- 37	133 +/- 30

Table 1: Collagen I synthesis (source: LVMH Recherche, Colombes, France) [2]

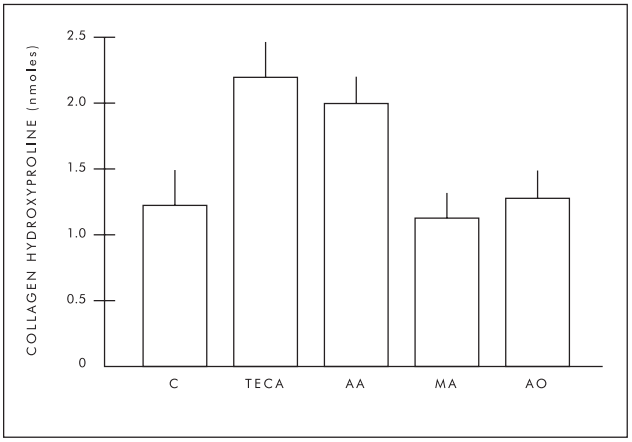


Table 2: Stimulation of collagen I synthesis (source: Laboratory of Biochemistry, Reims, France)[4]

In addition to stimulating the synthesis of collagen, the latter is also improved qualitatively, i.e., there is an increase in tensile strength as measured by the resistance to traction.[6]

In summary, centella asiatica — and specifically the Titrated Extract of centella asiatica — has revealed astonishing curative properties for the treatment of venous insufficieny, wound healing disturbances and, based on test results outlined above, clearly is of great value with regards to supporting skin health.

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