

A review of common European plants as active skincare ingredients

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Introduction:

Consumer interest for naturally derived cosmetic ingredients and is growing. [1] Current consumer attitudes tend to favour green and natural seeming products, and they are increasingly aware of the environmental impact cosmetics may have. Naturally derived ingredients are often perceived as more sustainable and environmentally friendly. [2] This poster will not argue the possible merits or demerits of all naturally derived ingredients, but simply look at the possibilities of certain plant extracts. Plant extracts such as chamomile are well known to be skin calming, due to their polyphenolic composition. Polyphenols, such as flavonoids and tannins that are found in plants, often have beneficial properties when used in skincare. The anti-inflammatory action of these extracts can be explained by the presence of certain flavonoids, such as apigenin and luteolin. Therefore, plants that are known to contain these phytochemicals, are most likely to have anti-inflammatory properties.

Results:

The purpose of this review is to address different European plants that could possess potential to soothe the skin when used topically. This review will look at their historical use, pharmacognosy, and possible and current use in skincare.

The plants of interest are *Achillea millefolium* (yarrow), *Epilobium angustifolium* (fireweed), *Lythrum salicaria* (purple loosestrife), *Plantago major* (greater plantain) and *Silybum marianum* (milk thistle). They are all linked to anti-inflammation in ethnobotanical tradition, and all can be found in cosmetic products currently on the

Botanical name	Common name	Pharmacological Use	Cosmetic raw materials	Examples of finished products
<i>Achillea millefolium</i>	Yarrow	Skin and mucous membrane infections, wound healing [3] Treating burns, wounds, acne and skin infections [4][5]	Yarrow Extract H. HL., Provital Phytelene EG 472 Yarrow, Greentech	Aurelia Probiotic Skincare – Brightening Anti-Pollution Mask De Mamiel – Atmospheriques Pure Calm Cleansing Dew
<i>Epilobium angustifolium</i>	Fireweed	Scrapes, wounds, acne, psoriasis, burns and skin infections [4]	Defenscalp PF, Lucas Meyer Cosmetics Epilobium Oleoactif, Hallstar	Natura Siberica – Flora Siberica Kamchatka Rosebay Willowherb Shampoo
<i>Lythrum salicaria</i>	Purple loosestrife	Treatment of eczema [6]	Sveltine ST, BASF	Oyuna - Natural Balance Prebiotic Face Cream
<i>Plantago major</i>	Greater Plantain or Arctic Plantain	Itchy skin, insect bites, sunburns, skin infections and wounds [4] [5]	Plantain Leaf Extract, Phytobasic, Bio-Botanica Inc Plantago Major, In vitro Plant-tech	Madara – Cleansing Milk Neal's Yard Remedies – Lavander & Aloe Vera Cooling Cream
<i>Silybum marianum</i>	Milk Thistle	Anti-oxidant, skin conditioning [7]	Actiphyte Milk Thistle, Lipotec SAU Silymarin Phytosome, Indena SpA	January Labs - Revitalizing Day Cream De Mamiel – Rise SkinCeuticals- Silymarin CF

Discussion:

The finished plant extracts as well as the finished commercial products that are on the market claim a variety of different skincare benefits. It is of interest to look even deeper into these extracts and the constituents, to see which of them could be responsible for the effect seen in skincare. Here are some of the constituents and their effects listed.

Plant constituent	Function	Found in
Apigenin	Anti-inflammatory Antioxidant Anti-carcinogenic Anti-ageing [8]	<i>A. millefolium</i> <i>L. salicaria</i> <i>P. major</i>
Luteolin	Anti-inflammatory Antioxidant [9]	<i>A. millefolium</i> <i>L. salicaria</i> <i>P. major</i>
Ursolic Acid	Anti-inflammatory Antioxidant Anti-carcinogenic [10]	<i>E. angustifolium</i> <i>P. major</i>
Silymarin	Antioxidant Anti-photoageing [7]	<i>S. marianum</i>

Using plant extracts in skincare is nothing new. Marketing claims are often based around exotic botanical ingredients. With a bigger emphasis on sustainability, the exoticism of far-fetched raw materials seems to be trend that may soon pass. It would be great to see some of these less exotic and glamorous plants used instead for skin soothing actives. They clearly contain many of the same constituents that are beneficial to skin, and grow in abundance in Europe. They do not compete with food crops, and they do not need irrigation of cultivation to grow. Therefore they can make the ideal skincare ingredients, however, their efficacy needs to be proven.



Conclusions:

A. millefolium, *E. angustifolium*, *E. arvense*, *L. salicaria*, *P. major* and *S. marianum* are all plants that grown in abundance in Europe. By looking their constituents, it is clear they have great potential as skincare actives.

These are what one might consider weeds, and their cultivation has not been abundant. As hardy plants that do not compete with food crops for cultivated land, their potential for development into more refined cosmetic ingredients remains largely untapped. Further investigation on the impact on biodiversity and the local ecosystems should be done prior to any harvesting to ensure sustainable sourcing.

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