Abstract: There is provided a method for the prophylactic or remedial treatment of acne, the method comprising the topical application of hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis. Also provided is a skincare composition comprising hydrolysed algin in combination with at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis and a topical anti-acne active ingredient, preferably salicylic acid. The methods and compositions provide improved acne treatments, particularly in cosmetic effects such as reducing the redness of the affected area of skin.
This invention relates to the treatment of acne vulgaris, to skincare compositions useful in such treatment and to a process to prepare said compositions.

Acne vulgaris (acne) is a chronic inflammatory condition of the pilosebaceous units of the skin, which is particularly prevalent in adolescents. The skin produces sebum and occasionally pores become blocked. This environment is ideal for a bacterium called \textit{Propionibacterium acnes} (\textit{P. acnes}) to live and multiply. Small numbers of this bacterium commonly live on the skin without any adverse effect. However, if large numbers develop in the blocked sebum, the immune system may react and cause inflammation. If inflammation develops, it causes the surrounding skin to become red, and the spots become larger and filled with pus (pustules). In some cases the pustules become even larger and form into small cysts. This condition is unsightly and, furthermore, if left untreated, can lead to the scarring of the skin.

Known treatments for topical application which are effective to treat the bacteria can have a harsh effect on the skin. Some effects include exfoliation and drying leading to stinging and/or redness of the skin.

Surprisingly, it has now been found that a combination of hydrolysed algin with at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis has improved efficacy in the treatment of acne.

Thus, according to a first aspect of the invention there is provided a method for the treatment of acne, the method comprising the topical application of hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis.
It has been found that this treatment provides advantages over existing acne treatments, particularly in toleration of the acne treatment by the skin. It may also have an effect in reducing the severity of the acne, for example as measured by the number of pustules and/or papules. Furthermore, cutaneous irritation may be reduced. Other measures indicating advantages are a reduction in inflammation in the affected skin and/or a soothing effect. Also, the spots may become less visible on the skin. A synergistic effect may be obtained in at least one measure of treatment. A synergistic association between these two classes of ingredients may provide that a composition may have lesser amounts of each individual ingredient.

In a further aspect of the present invention, there is provided a method for reducing irritancy associated with the topical application of a skincare composition comprising a keratolytic hydroxy carboxylic acid by incorporating hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis in said composition.

In a further aspect of the present invention, there is provided a cosmetic method for improving the appearance of skin afflicted by acne lesions, said method comprising reducing the redness index of said lesions by the topical application of a skincare composition comprising hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis.

In a yet further aspect of the present invention, there is provided the use of hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis for the treatment of acne.

In a still further aspect of the present invention, there is provided the
use of hydrolysed algin and a plant extract comprising one or more of Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis in the manufacture of a medicament for the treatment of acne.

In a further aspect of the present invention, there is also provided a skincare composition comprising

a) hydrolysed algin;

b) at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis;

c) at least one topical active ingredient; and

d) a topical carrier therefor.

The hydrolysed algin and plant extract useful in accordance with the present invention in combination may be applied simultaneously or sequentially to the area on a person's skin affected by acne, preferably simultaneously for example in admixture. A preferred treatment comprises an intimate mixture of the hydrolysed algin and plant extract. Typically, the combination is applied topically in a skincare composition.

Hydrolysed algin is a marine extract and may be obtained from any conventional source. A preferred hydrolysed algin is a concentrated solution of an oligosaccharide obtained by controlled enzymatic depolymerization (with a marine origin enzyme) of membraneous polysaccharides of a brown seaweed. It is further preferably constituted by a chain of two uronic acids: mannuronic acid and guluronic acid.

In one embodiment, the hydrolysed algin is obtained under the trade name Phycosaccharides A1 (RTM). In another embodiment, the hydrolysed algin is obtained under the trade name Phycosaccharides AIP (RTM). Both are supplied by Codif, Roz-sur-Cousenon, France.

The hydrolysed algin and the plant extract useful in accordance with the present invention are both present in therapeutically effective amounts. A
therapeutically effective amount of the combined ingredients is applied to the skin of a person in need thereof.

The concentration of hydrolysed algin in a skincare composition for topical application is preferably at least 0.0001 % w/w, more preferably at least 0.001 % w/w and most preferably at least 0.01 % w/w. The concentration of hydrolysed algin is preferably less than 1% w/w, more preferably less than 0.5% w/w and most preferably less than 0.2% w/w. The concentration of hydrolysed algin may therefore fall in the range 0.0001 % to 1% by weight, more preferably 0.001 % to 0.5% and most preferably 0.01 % to 0.2% w/w. A particularly preferred concentration of hydrolysed algin is 0.07% w/w.

In accordance with the present invention, there is used at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis. Preferred plants from which extracts can be derived for combination with at least one of the above materials are seashore plants. Preferably, two of the plant extracts are selected for combination with the hydrolysed algin, for example the combination of Lavandula stoechas with Helichrysum italicum or Helichrysum italicum with Cistus monspeliensis or Lavandula stoechas with Cistus monspeliensis. Most preferably, the plant extract comprises a mixture of Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis. Advantageously, said plant extract or combination thereof provided in accordance with the present invention provides the sole plan extract component of the composition.

These plant extracts, for example aromatic seashore plant extracts, may be obtained by means of a vacuum microwave hydrodistillation process (VMDH) which is used to remove the extracts from plants, especially seashore plants, including Lavandula stoechas, Helichrysum italicum, Cistus monspeliensis and Criste marine.

Preferably, the plant extract is obtained from Codif, Roz-sur-Cousenon, France under the trade name Areaumats, especially Areaumats Lavanda,
Areaumats Perpetua and Areaumats Cistaceae. The plant extract or mixture of plant extracts may be provided in aromatic waters with an aqueous carrier.

The total concentration of plant extract in a skincare composition for topical application is preferably at least 0.00001% w/w, more preferably at least 0.00005% w/w and most preferably at least 0.0001% w/w. The total concentration of plant extract is preferably less than 1% w/w, more preferably less than 0.1% w/w and most preferably less than 0.01% w/w. The total concentration of plant extract may therefore fall in the range 0.00001% to 1% w/w, more preferably 0.00005% to 0.1% w/w, most preferably 0.0001% to 0.01%. A particularly preferred concentration of total plant extract is 0.001% w/w.

Where more than one plant extract is used, the individual amounts of plant extract may be in equal parts, for example one third of the ranges given above where three plant extracts are employed. However, if desired the amounts of the individual extracts may differ. For example, in a typical skincare composition for topical application, the concentration of Lavandula stoechas is preferably at least 0.0001% w/w, more preferably at least 0.0002% w/w and most preferably at least 0.0004% w/w. The concentration of Lavandula stoechas is preferably less than 0.1% w/w, more preferably less than 0.01% w/w and most preferably less than 0.001% w/w. The total concentration of Lavandula stoechas may therefore fall in the range from 0.0001% to 0.1% by w/w, more preferably from 0.0002% to 0.01% and especially from 0.0004 to 0.001% w/w. A particularly preferred concentration of Lavandula stoechas is 0.0006% w/w. The concentration of Helichrysum italicum is preferably at least 0.00005% w/w, more preferably at least 0.0001% w/w and most preferably at least 0.0002% w/w. The concentration of Helichrysum italicum is preferably less than 0.5% w/w, more preferably less than 0.005% w/w and most preferably less than 0.0005% w/w. The total concentration of Helichrysum italicum may therefore fall in the range 0.00005% to 0.5% w/w, more preferably 0.0001% to 0.005% and especially 0.0002% to 0.0005% w/w. A particularly preferred concentration of
Helichrysum italicum is 0.0003% w/w. The concentration of Cistus monspeliensis is preferably at least 0.00003 % w/w, more preferably at least 0.00005% w/w and most preferably at least 0.00006% w/w. The concentration of Cistus monspeliensis is preferably less than 0.1 % w/w, more preferably less than 0.01 % w/w and most preferably less than 0.001 % w/w. The total concentration of Cistus monspeliensis may therefore fall in the range 0.00003% to 0.1 % w/w, more preferably 0.00005% to 0.001 % and especially 0.00006% to 0.001 % w/w. A particularly preferred concentration of Cistus monspeliensis is 0.0001 % w/w.

Advantageously, a skincare composition for use in accordance with the present invention comprises 4-8 parts by weight Lavandula stoechas to 1-5 parts by weight Helichrysum italicum to 0.1-3 parts by weight Cistus monspeliensis. Preferably, the respective weight ratios of these preferred plant extracts are 5 to 7 parts Lavandula stoechas to 2 to 4 parts Helichrysum italicum per part by weight Cistus monspeliensis, most preferably, 6 parts Lavandula stoechas and 3 parts Helichrysum italicum per part by weight Cistus monspeliensis.

In a composition useful in accordance with the present invention, the ratio of hydrolysed algin to total plant extract is preferably in the range 200:1 to 1:1 parts by weight, more preferably 200:1 to 20:1 parts by weight and most preferably 100:1 to 50:1 parts by weight.

A composition useful in accordance with the invention may comprise hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum, Cistus monspeliensis as the sole active ingredients. Further preferably, these ingredients provide the sole marine and/or plant extract component of the composition.

The skincare composition of the present invention is adapted to regulate the appearance of the skin, primarily to achieve an improvement in the appearance of the skin.
In a preferred aspect of the present invention, the composition includes at least one additional topical active ingredient, for example, two, three, four or more topical skincare active ingredients. These are preferably selected from:

**Anti-acne agents**, for example, keratolytic agents, such as hydroxy carboxylic acids, preferably salicylic acid;

antimicrobial or antibacterial compounds, for example selected from the following:
- triclosan, neomycin, clindamycin, polymyxin, bacitracin, benzoyl peroxide, hydrogen peroxide, tetracylines such as doxycycline or minocycline, sulfa drugs such as sulfacetamide, penicillins, cephalosporins such as cephalexin, and quinolones such as lomefloxacin, olfoxacin or trovafloxacin;

actives useful in regulating the condition of the skin, particularly for treating dysfunction of the skin barrier, for example by improving the barrier properties of the skin and/or the appearance of the skin and/or by protecting the skin from extrinsic effects, such as UV, for example ceramides which may be of natural, synthetic or semi-synthetic origin, and include trihydroxypalmitamidohydroxypropyl myristyl ether and ceramide 2;

oil control agents, for example selected from silica, hydrolysed milk protein and laurylmethacrylate/glycol dimethacrylate cross polymer;

antiviral compounds, for example selected from acyclovir, tamvir, and penciclovir;

antifungal compounds, for example selected from the following: farnesol, clotrimazole, ketoconazole, econazole, fluconazole, calcium or zinc undecylenate, undecylenic acid, butenafine hydrochloride, ciclopirox olamine, miconazole nitrate, nystatin, sulconazole, and terbinafine hydrochloride;
anti-inflammatory compounds, for example selected from the following:
steroidal agents selected from hydrocortisone, fluocinolone acetonide,
halcinonide, halobetasol propionate, clobetasol propionate, betamethasone
dipropionate, betamethasone valerate, and triamcinolone acetonide, and
non-steroidal anti-inflammatory agents selected from aspirin, ibuprofen,
ketoprofen, naproxen, aloe vera gel, aloe vera, licorice extract, pilewort,
Canadian willow root, zinc, and allantoin;

anthelmintic compounds, for example metronidazole.

A composition according to the invention may contain one or more
(preferably one, two, three or four) of these classes of compounds. A
composition according to the invention may contain one or more (preferably
one, two, three or four) compounds from each class. Preferably, the
ingredient is useful in regulating the function of the skin. Further preferably,
at least one active ingredient is effective in treating acne. One embodiment of
a composition comprises one or more actives selected from anti-acne
ingredients, oil control agents, antimicrobials, anti-bacterials and anti-
inflammatory agents.

Particularly suitable antibacterial agents are peroxide antibacterial agents. A
preferred peroxide antibacterial agent for inclusion in the composition is
hydrogen peroxide. Alternatively, the composition may comprise a
compound that, in use, is capable of generating hydrogen peroxide. An
example of the latter class of compound is an adduct such as urea peroxide
(carbamide peroxide).

When a composition according to the present invention comprises an
additional topically active ingredient effective in the treatment of acne, most
preferably salicylic acid is used. Salicylic acid is preferably incorporated into
the composition according to the invention as the free acid. However, the pH
of the composition may, and generally will, be such that the salicylic acid
exists in the composition in dissociated form. As the composition may well contain cationic counterions, the salicylic acid may then be thought of as being present in salt form. Alternatively, the salicylic acid may be incorporated into the composition in salt form, eg as a salt with a Group I metal, such as sodium salicylate. As used herein, unless the context requires otherwise, any and all references to salicylic acid should be taken to encompass references to the acid and to dissociated forms and salts thereof.

The concentration of salicylic acid in a preferred composition according to the invention is preferably at least 0.01 % by weight, more preferably at least 0.1 %, most preferably at least 0.5% and especially at least 1% by weight. The concentration of salicylic acid is preferably less than 10%, more preferably less than 5%, most preferably less than 4% and especially less than 3% by weight. The concentration of salicylic acid may therefore fall in the range 0.01 % to 10% by weight, more preferably 0.1% to 5%, and most preferably 0.5% to 4% and especially 1 to 3% by weight. A particularly preferred concentration of salicylic acid is 2% by weight.

In one embodiment of the invention, the skincare composition comprises a combination of hydrolysed algin, at least one plant extract selected from Lavandula stoechas, Helichrysum italicum, Cistus monspeliensis, and salicylic acid.

In a second embodiment of the invention, the skincare composition comprises a hydrolysed algin component, a plant extract component comprising a combination of Lavandula stoechas, Helichrysum italicum, Cistus monspeliensis, and a hydroxy carboxylic acid component comprising salicylic acid.

The composition is preferably prepared with a pH in the range 2.3 to 7.0, more preferably 2.5 to 6.0, and particularly a pH in the range 2.5 to 4.0, eg about pH 3.0 or pH 3.5.
Compositions useful according to the present invention may be formulated in numerous forms. However, the composition may often take the form of an aqueous or oily solution or dispersion or emulsion or a gel. An emulsion may be an oil-in-water emulsion or a water-in-oil emulsion.

The oil phase of water-in-oil or oil-in-water emulsions may comprise for example:

a) hydrocarbon oils such as paraffin or mineral oils;

b) waxes such as beeswax or paraffin wax;

c) natural oils such as sunflower oil, apricot kernel oil, shea butter or jojoba oil;

d) silicone oils such as dimethicone, cyclomethicone or cetyldimethicone;

e) fatty acid esters such as isopropyl palmitate, isopropyl myristate, diocetylmalate, glyceryl oleate and cetostearyl isononanoate;

f) fatty alcohols such as cetyl alcohol or stearyl alcohol and mixtures thereof (eg cetearyl alcohol);

g) polypropylene glycol or polyethylene glycol ethers, eg PPG-14 butyl ether; or

h) mixtures thereof, for example, the blend of waxes available commercially under the trade name Cutina (Henkel).

Emulsifiers used may be any emulsifiers known in the art for use in water-in-oil or oil-in-water emulsions. Known cosmetically acceptable emulsifiers include:

a) sesquioleates such as sorbitan sesquioleate, available commercially for example under the trade name Arlacel 83 (ICI), or polyglyceryl-2-sesquioleate;

b) ethoxylated esters of derivatives of natural oils such as the polyethoxylated ester of hydrogenated castor oil available commercially for example under the trade name Arlacel 989 (ICI);

c) silicone emulsifiers such as silicone polyols available commercially for example under the trade name ABIL WS08 (Th. Goldschmidt AG);
d) anionic emulsifiers such as fatty acid soaps e.g. potassium stearate and fatty acid sulphates e.g. sodium cetostearyl sulphate available commercially under the trade name Dehydag (Henkel);
e) ethoxylated fatty alcohols, for example the emulsifiers available commercially under the trade name Brij (ICI);
f) sorbitan esters, for example the emulsifiers available commercially under the trade name Span (ICI);
g) ethoxylated sorbitan esters, for example the emulsifiers available commercially under the trade name Tween (ICI);
h) ethoxylated fatty acid esters such as ethoxylated stearates, for example the emulsifiers available commercially under the trade name Myrj (ICI);
i) ethoxylated mono-, di-, and tri-glycerides, for example the emulsifiers available commercially under the trade name Labrafil (Alfa Chem.);
j) non-ionic self-emulsifying waxes, for example the wax available commercially under the trade name Polawax (Croda);
k) ethoxylated fatty acids, for example, the emulsifiers available commercially under the trade name Tefose (Alfa Chem.);
l) methylglucose esters such as polyglycerol-3 methyl glucose distearate available commercially under the name Tegocare 450 (Degussa Goldschmidt); or
m) mixtures thereof.

Gels provided according to the invention may be aqueous or non-aqueous. Aqueous gels are preferred. The gel will contain a gelling agent in order to give sufficient viscosity to the gel. A particularly suitable gelling agent is a copolymer of acryloyl dimethyl tauric acid (or a salt thereof), especially a copolymer of that monomer with another vinylic monomer. The salt may be a salt of a Group I alkali metal, but is more preferably an ammonium salt. Examples of suitable copolymer gelling agents are ammonium acryloyldimethyltaurate / vinyl pyrrolidone copolymer, ammonium acryloyldimethyltaurate / Beheneth-25 methacrylate copolymer, ammonium acryloyldimethyltaurate / vinyl formamide copolymer, These materials are available from Clariant GmbH in the range of products under the trade name Aristoflex.
A variety of thickening agents may also be used according to the nature of the liquid carrier and the viscosity required. Thickeners that are water-soluble or hydrophilic are preferred, and examples include acrylic acid polymers, eg those available commercially under the trade name Carbopol (B.F. Goodrich), modified celluloses, eg hydroxypropylmethylcellulose or hydroxyethylcellulose available commercially under the trade name Natrosol (Hercules), alkylgalactomanans available under the trade name N-Hance, xanthan gum, cetyl alcohol and sodium chloride.

The amount of gelling and/or thickening agent in the composition will each preferably lie in the range 0.1 to 5% w/w, more preferably 0.5 to 5% w/w. Typically, the amount of gelling and/or thickening agent will each be less than 3% w/w, eg about 1% w/w or about 2% w/w.

In the case of solutions or dispersions, and gels, the composition will generally contain a solvent system or other continuous liquid phase. Such a system is preferably aqueous. However, mixed solvent systems may often be used with advantage. Such a mixed solvent system most preferably comprises water, in admixture with a co-solvent, most preferably a lower (eg d-alcohol, in particular ethanol and t-butyl alcohol.

Preferred aqueous systems comprise water in an amount of at least 40% w/w, more preferably at least 50% w/w, most preferably at least 60% w/w. Some compositions may contain at least 70% or even at least 75% w/w. The upper limit of water will depend on the amounts of other ingredients incorporated in the composition so that the water may form the remainder of the composition up to 100% w/w of the composition. A typical maximum value is less than 90% w/w, for example less than 85% or 80% w/w.

The composition may additionally comprise other topical skincare ingredients which will be well known to those skilled in the art. These include, for example:
a) Emollients - ingredients that help to maintain the soft, smooth and pliable appearance of skin. Such ingredients may function by their ability to remain on the surface of the skin or in the stratum corneum, and to act as lubricants, reducing or preventing flaking of the skin and improving the skin's appearance.

Examples of emollients are isopropyl myristate, triglycerides of fatty acids eg lauric triglyceride or capric/caprylic triglyceride, such as the triglyceride available commercially under the trade name Miglyol 810 (Huls UK), and the polypropylene glycol ether of stearyl alcohol known as PPF-15 Stearyl Ether. Particularly preferred emollients are polysiloxane compounds, in particular those known as cyclomethicone, ie cyclic dimethyl polysiloxane compounds that conform to the formula:

\[-(Si(CH_3)_2)_n-\]

in which \( n \) has a value between 3 and 7.

b) Humectants or Moisturisers - ingredients intended to increase the water content of the top layers of the skin. Examples of such ingredients are glycerin, 1,3-butylene glycol and propylene glycol.

c) Surfactants - Surfactants may be used in compositions according to the invention as solubilisers, or as cleansing agents or foam boosters. Many different classes of surfactant may be suitable for inclusion in the composition according to the invention, and these will be readily apparent to those skilled in the art. Examples of suitable surfactants include polyethylene glycol ethers of alcohols such as isocetyl alcohol (eg Isoceteth-20), isostearyl alcohol (eg Isosteareth-20), cetyl alcohol (eg Ceteth-20), oleyl alcohol (eg Oleth-20) and cetearyl alcohol (eg Ceteareth-20). A particularly preferred surfactant for use in the invention is Isoceteth-20.

d) Emulsion stabilising salts such as sodium chloride, sodium citrate or magnesium sulphate.
e) Preservatives - ingredients which prevent or retard microbial growth and thus protect the composition from spoilage. Examples of preservatives include such as propylparaben, bronopol, sodium dehydroacetate, polyhexamethylenebiguanide hydrochloride, isothiazolone and diazolidinylurea.

f) Chelating agents or sequestering agents (sequestrants) - ingredients that have the ability to complex with and inactivate metallic ions in order to prevent their adverse effects on the stability or appearance of the composition, as described above. Examples of chelating agents are ethylenediamine tetraacetic acid and its salts, notably the dipotassium and especially the disodium or tetrasodium salt.

g) Abrasives - ingredients used to assist in the removal of unwanted tissue or foreign materials from the skin during application of the composition. Abrasives commonly comprise fine solid particles. One example of a suitable abrasive is polyethylene beads.

h) pH adjusters - Ingredients used to control the pH of the composition. Examples of pH adjusters are inorganic salts such as sodium hydroxide, and organic bases such as triethanolamine.

i) Conditioning agents, for example distearyldimonium chloride.

j) Perfumes and colourings.

The composition according to the invention may be applied and left on the skin to have the desired therapeutic effect or it may be applied and then rinsed off, for example with water. The composition may be applied with the aid of a fibrous material, for example a pad or a wipe.

The treatment of acne includes the prophylactic and remedial treatment of acne. The combination of hydrolysed algin and selected plant extract
according to the present invention may be used in the therapeutic treatment of acne, including the inflammation associated with acne vulgaris, but will often be used in a cosmetic method, the objective of which is to reduce or eliminate externally visible, and often unsightly, symptoms of acne vulgaris.

In particular, the above described combination may be used to regulate the condition of the skin associated with acne vulgaris, in a patient suffering from acne. This may include treating the appearance of the skin, for example inflamed lesions (such as example pustules and/or papules). In particular, the treatment may include a reduction in the number and/or the intensity of blemishes, for example pustules and/or papules, on the skin. The treatment may also provide a reduction in the redness of the skin. Such regulation will generally serve to cosmetically improve the appearance of the skin, in particular in ameliorating the redness of the afflicted area. These effects may be achieved with or without the presence of an anti-acne agent. Preferably an anti-acne agent is present in the acne treatment. In a preferred embodiment, wherein the treatment includes the co-administration of an anti-acne agent, particularly a hydroxycarboxylic acid, there may also be provided the treatment of non-inflamed lesions (such as blackheads and/or whiteheads).

The redness of the skin may be measured by a redness index which measures the intensity and number of spots (as described hereinafter). A decrease in the redness index provides that the skin will appear less red.

In a yet further aspect of the invention, there is provided a process to prepare a skincare composition as previously described comprising combining a topical active ingredient, especially useful in the treatment of acne, with hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis in a carrier, preferably an aqueous carrier.

In a preferred process, the composition includes an oily phase and an aqueous phase. In said process the components of the oily phase are
combined and the components of the aqueous phase are separately combined. The two phases are added together with appropriate surfactants and/or emulsifying aids in each phase to provide a stable emulsion.

The invention will now be described in greater detail, by way of illustration only, with reference to the following Examples. In the Examples, Codif, Roz-sur-Cousenon, France supply hydrolysed algin under the tradename Phycosaccharide AIP (RTM), Lavandula stoechas under the tradename Areaumats Lavanda, Helichrysum italicum under the tradename Areaumats Perpetua and Cistus monspeliensis under the tradename Areaumats Cistaceae.

The compositions were formulated in an aqueous carrier according to known methods to produce compositions suitable for topical application.

Example 1

<table>
<thead>
<tr>
<th>Formulation</th>
<th>% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase A</strong></td>
<td></td>
</tr>
<tr>
<td>PPG-14 butyl ether</td>
<td>8.00</td>
</tr>
<tr>
<td>Cetearyl alcohol</td>
<td>6.00</td>
</tr>
<tr>
<td>PEG-20 stearate</td>
<td>1.50</td>
</tr>
<tr>
<td>Salicylic acid</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>Phase B</strong></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>to 100</td>
</tr>
<tr>
<td><strong>Phase C</strong></td>
<td></td>
</tr>
<tr>
<td>Hydrolyzed algin</td>
<td>1.00</td>
</tr>
<tr>
<td>Lavandula Stoechas</td>
<td>0.0006</td>
</tr>
<tr>
<td>Helichrysum italicum</td>
<td>0.0003</td>
</tr>
<tr>
<td>Cistus monspeliensis</td>
<td>0.0001</td>
</tr>
<tr>
<td>Parfum</td>
<td>0.10</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>0.01</td>
</tr>
</tbody>
</table>
Method
The ingredients of phase A were mixed and heated to 70-75 °C. The water (phase B) was heated to 70-75 °C. Phase A was added to phase B and homogenised for 5 minutes. After cooling to below 35 °C each ingredient of phase C was added separately, stirring well between each addition. The mixture was cooled to below 25 °C and additional water added to make to the required weight.

Example 2

<table>
<thead>
<tr>
<th>Formulation</th>
<th>% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase A</strong></td>
<td></td>
</tr>
<tr>
<td>Octyldodecanol</td>
<td>6.0</td>
</tr>
<tr>
<td>Cetyl alcohol</td>
<td>2.0</td>
</tr>
<tr>
<td>Dimethicone</td>
<td>2.0</td>
</tr>
<tr>
<td>Salicylic acid</td>
<td>2.0</td>
</tr>
<tr>
<td>PEG-40 stearate</td>
<td>1.89</td>
</tr>
<tr>
<td>Glyceryl stearate</td>
<td>1.86</td>
</tr>
<tr>
<td>PEG-100 stearate</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Phase B</strong></td>
<td></td>
</tr>
<tr>
<td>Magnesium aluminum silicate</td>
<td>1.0</td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>5.0</td>
</tr>
<tr>
<td>Xanthan gum</td>
<td>0.75</td>
</tr>
<tr>
<td><strong>Phase C</strong></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>to 100</td>
</tr>
<tr>
<td>Phenoxyethanol</td>
<td>0.68</td>
</tr>
<tr>
<td><strong>Phase D</strong></td>
<td></td>
</tr>
<tr>
<td>Hydrolyzed algin</td>
<td>1.0</td>
</tr>
<tr>
<td>Lavandula stoechas</td>
<td>0.0006</td>
</tr>
<tr>
<td>Helichrysum italicum</td>
<td>0.0003</td>
</tr>
<tr>
<td>Cistus monspeliensis</td>
<td>0.0001</td>
</tr>
</tbody>
</table>
Method
The ingredients of phase A were mixed and heated to 70-75 °C. The ingredients of phase B were mixed until a smooth paste was formed. The aqueous phase C was heated to 70-75 °C. Phase B was added to phase C and mixed for 20 minutes. Phase A and the phase C mixture were combined at 70-75 °C and homogenised for 5 minutes. After cooling to below 35 °C each ingredient of phase D was added separately, stirring well between each addition. The mixture was cooled to below 25 °C and the pH adjusted with phase E as required. Additional water was added to make to the required weight.

Example 3

<table>
<thead>
<tr>
<th>Formulation</th>
<th>% (w/w)</th>
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<tbody>
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<td>Phase A</td>
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<tr>
<td>Hydrogenated Polyisobutene</td>
<td>4.00</td>
</tr>
<tr>
<td>Buxus Chinensis</td>
<td>2.00</td>
</tr>
<tr>
<td>Butyrospermum Parkii</td>
<td>2.00</td>
</tr>
<tr>
<td>Synthetic beeswax</td>
<td>1.50</td>
</tr>
<tr>
<td>Cetyl alcohol</td>
<td>1.50</td>
</tr>
<tr>
<td>Hydrogenated Coco-Glycerides</td>
<td>1.00</td>
</tr>
<tr>
<td>Tocopherol</td>
<td>0.20</td>
</tr>
<tr>
<td>Cyclomethicone</td>
<td>2.00</td>
</tr>
<tr>
<td>Trihydroxypalmitamidohydroxypropyl Myristyl Ether</td>
<td>0.05</td>
</tr>
<tr>
<td>Decarboxy Carnosine HCl</td>
<td>0.05</td>
</tr>
<tr>
<td>Ceramide 2</td>
<td>0.01</td>
</tr>
<tr>
<td>Phase B</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>to 100</td>
</tr>
<tr>
<td>Glycerin</td>
<td>4.98</td>
</tr>
<tr>
<td>Tetrasodium EDTA</td>
<td>0.05</td>
</tr>
<tr>
<td>Butylene glycol</td>
<td>0.04</td>
</tr>
<tr>
<td>Citric acid</td>
<td>0.02</td>
</tr>
<tr>
<td>Phase C</td>
<td></td>
</tr>
<tr>
<td>Carbomer</td>
<td>0.20</td>
</tr>
<tr>
<td>Acrylates/C10-30 Alkyl Acrylate Crosspolymer</td>
<td>0.30</td>
</tr>
</tbody>
</table>
Method

The ingredients of phase A were mixed and heated to 70-75 °C. The ingredients of aqueous phase B were mixed and heated to 70-75 °C. Phase C was added to phase B and mixed with a homogeniser until smooth. Phase D was added to the phase B mixture and mixed with a homogeniser until smooth. Phase A and the phase B mixture were combined at 70-75 °C and homogenised for 5 minutes. After cooling to below 5°C, the ingredients of phase E were added and mixed with a homogeniser until smooth. The mixture was then cooled to below 35°C and each ingredient of phase F was added separately, stirring well between each addition. The mixture was cooled to below 25°C and additional water added to make to the required weight.

<table>
<thead>
<tr>
<th>Phase D</th>
<th>2.10</th>
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<tbody>
<tr>
<td>Glyceryl Polymethacrylate</td>
<td></td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Phase E</strong></td>
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</tr>
<tr>
<td>Nylon-12</td>
<td>2.00</td>
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<tr>
<td><strong>Phase F</strong></td>
<td></td>
</tr>
<tr>
<td>Phenoxyethanol</td>
<td>1.00</td>
</tr>
<tr>
<td>Triethylene glycol</td>
<td>0.15</td>
</tr>
<tr>
<td>Dichlorobenzyl alcohol</td>
<td>0.13</td>
</tr>
<tr>
<td>Saccharide Isomerate</td>
<td>1.24</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>0.10</td>
</tr>
<tr>
<td>Hydrolyzed algin</td>
<td>0.07</td>
</tr>
<tr>
<td>PEG-40 Hydrogenated castor oil</td>
<td>0.04</td>
</tr>
<tr>
<td>Cistus monspeliensis</td>
<td>0.0001</td>
</tr>
<tr>
<td>Lavandula stoechas</td>
<td>0.0006</td>
</tr>
<tr>
<td>Helichrysum italicum</td>
<td>0.0003</td>
</tr>
<tr>
<td>Preservative</td>
<td>qs</td>
</tr>
<tr>
<td>Parfum</td>
<td>0.20</td>
</tr>
</tbody>
</table>


Clinical Studies

Study 1

In a study of 15 healthy subjects aged 18-25 with greasy facial skin with slight to moderate acne, it was found that after application of a composition as described in Example 1 at the beginning and end of each day, a statistically significant reduction (compared to baseline) in the intensity number (ie. size and redness measures) on the number of papules was obtained at days 3 and 7. The product was also well tolerated on the skin.

Study 2

In a study of 11 healthy subjects aged 18-28 with dry, greasy or combination/greasy skin facial skin with mild to moderate acne, it was found that after application of a composition as described in Example 2 at the beginning and end of each day, a significant reduction (compared to baseline) in the mean number of inflamed lesions was obtained at days 1, 3 and 7 (Table A below). Furthermore, the redness index\(^1\) was also reduced (compared to baseline) at days 1, 3 and 7 (Table B below). The product was also well tolerated on the skin.

<table>
<thead>
<tr>
<th>Table A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

\(^1\) Redness index is a measure of facial redness.
Note 1: Redness index was measured by
a) counting all inflamed lesions and assessing each lesion as "pale", "mild" or "strong" and
b) calculating (number pale x 1) + (number mild x 2) + (number strong x 3).

The assessment of the lesions was conducted by a trained clinical assessor.

<table>
<thead>
<tr>
<th>Day</th>
<th>% decrease in redness index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11.51</td>
</tr>
<tr>
<td>3</td>
<td>27.27</td>
</tr>
<tr>
<td>7</td>
<td>33.57</td>
</tr>
</tbody>
</table>
Claims

1. A method for the treatment of acne, which method comprises the topical application of hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis.

2. A method according to Claim 1, wherein said plant extract comprises a mixture of Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis.

3. A method according to Claim 1 or Claim 2, which method comprises the topical application of a composition comprising said hydrolysed algin and said plant extract.

4. A method according to Claim 3, wherein the composition comprises said hydrolysed algin in an amount from 0.0001 % to 1% by weight of the composition, preferably from 0.001 % to 0.5% by weight and more preferably from 0.01 to 0.2% by weight.

5. A method according to Claim 3 or Claim 4, wherein the composition comprises said plant extract in an amount from 0.00001 % to 1% by weight of the composition, preferably from 0.00005 % to 0.1 % by weight and more preferably from 0.0001 % to 0.01% by weight.

6. A method according to any one of claims 3 to 5, wherein the composition comprises hydrolysed algin in a ratio to total plant extract of 200:1 to 20:1 parts by weight.

7. A method according to any one of claims 3 to 6, wherein the composition comprises 4-8 parts by weight Lavandula stoechas, 1-5 parts by weight Helichrysum italicum and 0.1-3 parts by weight Cistus monspeliensis.

8. A method according to any one of claims 3 to 7, wherein said composition is in the form of a solution, a dispersion, a gel or an emulsion, more preferably an oil-in-water emulsion.
9. A method according to any one of claims 3 to 8, wherein said composition further comprises at least one topical anti-acne active ingredient.

10. A method according to Claim 9, wherein said composition comprises salicylic acid or salt thereof.

11. A method according to any one of claims 3 to 10, wherein the composition comprises salicylic acid or a salt thereof, hydrolysed algin and a plant extract component consisting of a mixture of Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis.

12. The use of hydrolysed algin and a plant extract comprising one or more of Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis in the manufacture of a composition for the treatment of acne.

13. A skincare composition comprising
   a) hydrolysed algin;
   b) at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis;
   c) at least one topical active ingredient; and
   d) a topical carrier therefor.

14. A composition according to Claim 13, wherein said composition comprises one or more actives selected from anti-acne ingredients, oil control agents, antimicrobials and anti-inflammatory agents.

15. A composition according to Claim 14, which composition comprises salicylic acid or a salt thereof.

16. A composition according to any one of Claims 13 to 15, further comprising at least one skincare ingredient selected from emollients, humectants, moisturisers, abrasives and skin conditioners.

17. A composition according to any one of Claims 13 to 16, wherein said carrier comprises water in an amount of at least 50% by weight of the composition.
18. A method for reducing irritancy associated with the topical application of a skincare composition comprising a keratolytic hydroxy carboxylic acid, said method including the incorporation of hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis in said composition.

19. A cosmetic method for improving the appearance of skin afflicted by acne lesions, said method comprising reducing the redness of said lesions by the topical application of a skincare composition comprising hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis.

20. A process to prepare a composition according to any one of claims 13 to 17 comprising combining a topical active ingredient with hydrolysed algin and at least one plant extract selected from Lavandula stoechas, Helichrysum italicum and Cistus monspeliensis in a carrier, preferably an aqueous carrier.
**INTERNATIONAL SEARCH REPORT**

**A. CLASSIFICATION OF SUBJECT MATTER**
INVI. A61K8/97 A61K8/98 A61Q19/00 A61P17/10

According to International Patent Classification (IPC) or to both national classification and IPC

**B. RELDS SEARCHED**
Minimum documentation searched (classification system followed by classification symbols)
A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database consulted during the international search (name of database and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, CHEM ABS Data, BIOSIS, EMBASE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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Further documents are listed in the continuation of Box C. See patent family annex.

| Special categories of cited documents : | | |
| "A" document defining the general state of the art which is not considered to be of particular relevance | "I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "E" earlier document but published on or after the international filing date | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. |
| "O" document referring to an oral disclosure, use, exhibition or other means | "S" document member of the same patent family |

Date of the actual completion of the international search: 22 February 2008

Date of mailing of the international search report: 14/03/2008

Name and mailing address of the ISA:
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel: (+31-70) 340-2040, Tx. 31 651 epi nl Fax: (+31-70) 340-3016

Authorized officer:
Yon, Jean-Michel
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