

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 March 2005 (03.03.2005)

PCT

(10) International Publication Number
WO 2005/018629 A1

(51) International Patent Classification⁷: **A61K 31/195**,
31/20

(81) Designated States (*national*): AE, AU, BR, CA, CN, CR,
HU, IL, IN, JP, KR, MX, NO, NZ, PH, PL, SC, SG, US,
ZA.

(21) International Application Number:
PCT/US2003/025207

(84) Designated States (*regional*): European patent (AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,
IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

(22) International Filing Date: 12 August 2003 (12.08.2003)

(25) Filing Language: English

Declaration under Rule 4.17:

(26) Publication Language: English

— *of inventorship (Rule 4.17(iv)) for US only*

(71) Applicant and

Published:

(72) Inventor: **YARBROUGH, William, M.** [—/US]; 509 W.
Altorfer Lane, Peoria, IL 61615 (US).

— *with international search report*

(74) Agent: **KNECHTEL, Robert, L.**; 1105 Moraine Drive,
Woodstock, IL 60098 (US).

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: TREATMENT FOR ACNE VULGARIS AND METHOD OF USE

(57) Abstract: A treatment for Acne Vulgaris is provided for in a topical treatment. According to the invention, a method is provided for applying composition substances to the infected area, working the composition into the infected area, and removing the composition from the infected area. The composition comprises at least one ethoxylate in combination with Sodium Lauroyl Sarcosinate. Alternatively, the ethoxylate can be exchanged for a methoxylate or a propoxylate. An inert scrubbing agent, such as polyethylene beads, can also be included. Acetylated lanolin alcohol, sodium Lauroyl Sarcosinate, EDTA, a foam stabilizer, and water can also be added to the composition to assist performance.



WO 2005/018629 A1

1 **Invention: Treatment for Acne Vulgaris and Method of Use**

2 **Inventor: William M. Yarbrough**

3 **I. FIELD OF THE INVENTION**

4 The present invention relates to a composition including surfactants for the
5 treatment of acne vulgaris. Methods of use are also included

6 **II. BACKGROUND OF THE INVENTION AND PRIOR ART**

7 Acne vulgaris (or "acne") is a disorder of the sebaceous glands. It is
8 characterized by lesions that are either non-inflammatory or inflammatory papules and
9 nodules. Non-inflammatory papules may be open, commonly referred to as
10 "blackheads", or closed, commonly referred to as "whiteheads". As a group, non-
11 inflammatory papules are called comedones. Closed comedones can lead to
12 inflammatory nodules, papules, and pustules. Severe cases of acne vulgaris can lead to
13 scars characterized by pitting.

14 It is believed that acne results from partial rupture of a partially inflamed
15 follicle. The follicle then spills its components, thereby resulting in the development of a
16 perifollicular inflammatory process. Generally, fresh lesions are sterile, but later gram-
17 positive diptheroids are present. Many times the skin will have a greasy look to it; this is
18 probably due, at least in part, to the release of fatty acids during lipolysis induced by P.
19 acnes.

20 Acne can be a serious problem. It generally manifests itself during adolescence
21 and spontaneously resolves in the late teens or early twenties; although for some, it can be
22 a life long problem. Mild to moderate acne is most often treated with topical agents.

INVENTION: Treatment for Acne Vulgaris Treatment and Method of Use
INVENTOR: William Yarbrough

1 More severe cases are treated with incision and drainage of lesions, ultraviolet light
2 therapy, and systemic antibiotics.

3 The prior art is replete with compositions for use in the treatment of acne.
4 Topical agents, such as benzoyl peroxide, are thought to decrease bacteria and are often
5 used in the treatment of acne. These treatments are found in many forms, lotions, gels,
6 pads, etc. and are generally available over the counter. Retinol in various forms has been
7 more recently proposed by various Inventors. There are also many soaps used in the
8 treatment of acne. A major shortcoming of most of the prior art is that they often do not
9 penetrate sufficiently and they leave the skin dry.

10 **II. OBJECTS OF THE INVENTION**

11 It is an object of the present invention to provide a treatment that helps to alleviate
12 the local signs and symptoms caused by acne vulgaris.

13 It is a further object of the present invention to provide a method of use of the
14 present inventive treatment.

15 It is yet another object of the present invention to provide a treatment that
16 includes at least a first nonyl phenyl ethoxylate and sodium lauroyl sarcosinate to which a
17 second nonyl phenyl ethoxylate, acetylated lanolin alcohol, EDTA, a foam stabilizer,
18 water, and inert polyethylene granules can be added without altering the effectiveness of
19 the treatment.

20 It is a yet further object of the present invention to provide a treatment that is safe
21 to use.

INVENTION: Treatment for Acne Vulgaris Treatment and Method of Use
INVENTOR: William Yarbrough

1 It is yet another object of the present invention to provide such treatment that is
2 topical, can be purchased over the counter, and is economical.

3 **IV. SUMMARY OF THE INVENTION**

4 The above objects of the invention are provided for in a topical treatment for acne
5 vulgaris. According to the invention, a method is provided for applying a composition of
6 substances to the infected area, working the composition into the infected area, and
7 removing the composition from the infected area. The composition comprises at least
8 one ethoxylate in combination with Sodium Lauroyl Sarcosinate (or "SLS"). An inert
9 scrubbing agent, such as polyethylene beads, can also be included to the formula.
10 Acetylated lanolin alcohol, a second ethoxylate, EDTA, a foam stabilizer, and water can
11 also be added to the composition without effecting performance.

12 Other formulas that keep the polarity similar to that of the inventive formula will
13 also work. To keep the polarity similar, it is necessary for the compound to have similar
14 characteristics, such as Carbon chains, carbonyl groups, Nitrogen bound to Carbon,
15 Aromatic ring(s), Oxylate groups, and appropriate functional groups at the ends of the
16 individual molecules. The ideal substitute chemicals would have all of the characteristics
17 mentioned above, but it is not necessary to have every one of those as listed. For
18 example, if the functional groups at the ends of the individual molecules are exchanged
19 for other functional groups that retain the ability to undergo an emulsion polymerization,
20 then the effectiveness of the compound is also retained. Another example is to change the
21 ethoxylate to a methoxylate or propoxylate. These formations would still retain a similar

INVENTION: Treatment for Acne Vulgaris Treatment and Method of Use
INVENTOR: William Yarbrough

1 polarity but would be different compounds with different characteristics. Yet another
2 example would be to exchange triply bound Nitrogen with a doubly bound or perhaps
3 Nitrogen with 4 Carbons bound to it.

4 **V. DETAILED DESCRIPTION OF THE INVENTION**

5 Chemical analysis and research has revealed that two of the component parts of
6 the inventive composition are principally involved in its effectiveness as an acne
7 treatment: an ethoxylate and Sodium Lauroyl Sarcosinate ("SLS"). The ethoxylate is
8 preferably a nonyl phenol ethoxylate.

9 The Inventor has also found, however, that other formulas that keep the polarity
10 similar to that of the inventive formula will also work. To keep the polarity similar, it is
11 necessary for the compound to have similar characteristics, such as Carbon chains,
12 carbonyl groups, Nitrogen bound to Carbon, Aromatic ring(s), Oxylate groups, and
13 appropriate functional groups at the ends of the individual molecules. The ideal
14 substitute chemicals would have all of the characteristics mentioned above, but it is not
15 necessary to have every one of those as listed. For example, if the functional groups at the
16 ends of the individual molecules are exchanged for other functional groups that retain the
17 ability to undergo an emulsion polymerization, then the effectiveness of the compound is
18 also retained. Another example is to change the ethoxylate to a methoxylate or
19 propoxylate. These formations would still retain a similar polarity but would be different
20 compounds with different characteristics. Yet another example would be to exchange

INVENTION: Treatment for Acne Vulgaris Treatment and Method of Use
INVENTOR: William Yarbrough

1 triply bound Nitrogen with a doubly bound or perhaps Nitrogen with 4 Carbons bound to
2 it.

3 The inventor has also discovered that the addition of an inert scrubbing agent
4 improves the action of the inventive composition. The beads should be large enough to
5 be effective but not so large as to cause abrasions. The inventor suggests beads in the
6 range of 5 to 50 microns with an average size being approximately 25 microns or 50
7 mesh.

8 To make the inventive composition, an exact ratio of ethoxylate to SLS is not
9 critical. The only requirement is that the ethoxylate is completely reacted with the SLS,
10 creating a polymer. This will vary with the ethoxylate used, but the Inventor has
11 determined that a ratio of ethoxylate-to- SLS of 1.5:2 is preferred. The amount by weight
12 of polyethylene beads can vary according to the grittiness desired. The Inventor has
13 found that a formula of ethoxylate:SLS:polyethylene of 40:20:40 is preferred but that
14 formulas of other concentrations are useful. Thus, for production purposes, formulas
15 having SLS ranging from 10 to 20 % by weight, ethoxylate ranging from 20 to 40 % by
16 weight, and polyethylene beads from 20 to 50% by weight are reasonable. But again, the
17 formula is not restricted to these ranges, which ranges are presented for example purposes
18 only.

19 Also, a cutting agent that does not chemically react with the composition may be
20 added. The cutting agent makes the overall composition flow more easily, thereby

INVENTION: **Treatment for Acne Vulgaris Treatment and Method of Use**
INVENTOR: **William Yarbrough**

1 enabling more packaging options, such as tubes. The cutting agent must be added only in
2 sufficient amount that it promotes flow but does not effect the action of the composition.
3 In use, an sufficient amount of the composition is used to cover the infected area,
4 the composition is applied to an infected area and worked over the area by a scrubbing
5 motion. After sufficient time has elapsed to ensure that the infected area has been
6 adequately exposed to the composition such that they area feels clean, approximately ten
7 to thirty seconds for the typical person, the area is rinsed cleaned.

INVENTION: Treatment for Acne Vulgaris Treatment and Method of Use
INVENTOR: William Yarbrough

CLAIMS

1

2

I CLAIM:

3

1. A Treatment for Acne Vulgaris comprising sodium lauroyl sarcosinate and a
nonyl phenyl ethoxylate in combination.

5

6

2. The treatment for Acne Vulgaris of Claim 1 further including a second nonyl
phenyl ethoxylate.

8

9

3. The treatment for Acne Vulgaris of Claim 1 further including acetylated lanolin
alcohol.

11

12

4. The treatment for Acne Vulgaris of Claim 1 further including polyethylene
granules.

14

15

5. The treatment for Acne Vulgaris of Claim 1 further including water.

16

17

6. The treatment for Acne Vulgaris of Claim 1 further including
ethylenediaminetetraacetic acid.

19

20

7. The treatment for Acne Vulgaris of Claim 1 further including a foam stabilizing
agent.

21

INVENTION: **Treatment for Acne Vulgaris Treatment and Method of Use**
INVENTOR: **William Yarbrough**

1

2 8. The treatment for Acne Vulgaris of Claim 1 further including a cutting agent.

3

4 9. The cutting agent of Claim 8 being selected from the group of aqueous based
5 solutions and oil based solutions.

6

7 10. The treatment for Acne Vulgaris of Claim 1 wherein the ethoxylate is exchanged
8 for a methoxylate.

9

10 11. The treatment for Acne Vulgaris of Claim 1 wherein the ethoxylate is exchanged
11 for a propoxylate.

12

13 12. A treatment for Acne Vulgaris comprising an ethoxylate, sodium lauroyl
14 sarcosinate, and scrubbing means.

15

16 13. The treatment for Acne Vulgaris of Claim 12 wherein the scrubbing mean is
17 polyethylene beads.

18

19 14. The treatment for Acne Vulgaris of Claim 12 further including a cutting agent.

20

INVENTION: **Treatment for Acne Vulgaris Treatment and Method of Use**
INVENTOR: **William Yarbrough**

1 15. The treatment for Acne Vulgaris of Claim 12 wherein the ethoxylate is exchanged
2 for a methoxylate.

3

4 16. The treatment for Acne Vulgaris of Claim 12 wherein the ethoxylate is exchanged
5 for a propoxylate.

6

7 17. A treatment for Acne Vulgaris comprising: a first ethoxylate, a second ethoxylate,
8 acetylated lanolin alcohol, sodium lauroyl sarcosinate, EDTA, a foam stabilizer, water,
9 and inert polyethylene granules.

10

11 18. The treatment for Acne Vulgaris of Claim 17 wherein the first ethoxylate is
12 exchanged for a methoxylate.

13

14 19. The treatment for Acne Vulgaris of Claim 17 wherein the first ethoxylate is
15 exchanged for a propoxylate.

16

17 20. A treatment for Acne Vulgaris comprising an ethoxylate, sodium lauroyl
18 sarcosinate, and EDTA.

19

20 21. The treatment for Acne Vulgaris of Claim 20 wherein the ethoxylate is exchanged
21 for a methoxylate.

INVENTION: **Treatment for Acne Vulgaris Treatment and Method of Use**
INVENTOR: **William Yarbrough**

1

2 22. The treatment for Acne Vulgaris of Claim 20 wherein the ethoxylate is exchanged
3 for a propoxylate.

4

5 23. A method for treating Acne Vulgaris comprising the steps of:

6 preparing a composition comprising an ethoxylate and sodium lauroyl
7 sarcosinate;

8 applying the composition to an infected area;

9 permitting the composition to remain on the infected area a sufficient
10 amount of time to enable the composition of matter to cause an effect; and,

11 removing the composition from the infected area.

12

13 24. The method of Claim 23 wherein preparing the composition further includes
14 adding second ethoxylate.

15

16 25. The method of Claim 23 wherein preparing the composition further includes
17 adding acetylated lanolin alcohol.

18

19 26. The method of Claim 23 wherein preparing the composition further includes
20 adding acetylated polyethylene granules.

21

INVENTION: **Treatment for Acne Vulgaris Treatment and Method of Use**
INVENTOR: **William Yarbrough**

1 27. The method of Claim 23 wherein preparing the composition further includes
2 adding water.

3

4 28. The method of Claim 23 wherein preparing the composition further includes
5 EDTA.

6

7 29. The method of Claim 23 wherein preparing the composition further includes a
8 foam stabilizer.

9

10 30. The method of Claim 23 further including the step of adding a thinning agent to
11 the composition.

12

13 31. The method of Claim 23 wherein the ethoxylate is exchanged for a methoxylate.

14

15 32. The method of Claim 23 wherein the ethoxylate is exchanged for a propoxylate.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US03/25207

A. CLASSIFICATION OF SUBJECT MATTER				
IPC(7) : A61K 31/195, 31/20 US CL : 514/561, 862, 558				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) U.S. : 514/561, 862, 558				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST, Registry, USPatfull, caplus				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
Y	GB 1 539 031 (BEECHAM GROUP LIMITED) 24 January 1979 (24.01.1979), page 1, line 32-34.	1-32		
Y	WO 00/03686 A2 (SARLO) 27 January 2000 (27.01.2000), page 4, Example I and page 5, Examples II and III.	1-32		
X	US 6,423,746 B1 (YARBROUGH et al) 23 July 2002 (23.07.2002), whole document.	1-22		
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.				
* Special categories of cited documents: <table border="0"> <tr> <td> "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed </td> <td> "T" 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 "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 "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 "&" document member of the same patent family </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" 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 "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 "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 "&" document member of the same patent family
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" 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 "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 "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 "&" document member of the same patent family			
Date of the actual completion of the international search 22 June 2004 (22.06.2004)		Date of mailing of the international search report 20 JUL 2004		
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 872-9306		Authorized officer Sreeni Padmanabhan, PhD., <i>J. Roberts for</i> Telephone No. 571-272-1600		