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Brazilian Biodiversity



CitroGreen
Actives

AlphaComplete®

100% NATURAL PRODUCT WITH ANTIMICROBIAL ACTIVITY,
ANTI-IRRITATING AND ANTI-INFLAMMATORY ACTION.

AlphaComplete® is a new multi-functional vegetal active that has been developed in 3 different concentrations **AlphaComplete® Face**, **AlphaComplete® Hair** and **AlphaComplete® Body**, a natural alternative bactericide for the treatment of acne and dandruff, relief of itch and oiliness control. Result of a potent mixture 100% natural, bactericide and bacteriostatic at low concentrations.

BENEFÍCIOS

- Complex innovative and multifunctional;
- Proven efficacy for acne and dandruff treatment;
- Anti-irritant and anti-inflammatory;
- Regenerating and healing;
- Proved antimicrobial action;
- Reduction upper than 99,9% in organism score (Test Time Kill);
- Dermatologically tested;
- Natural preservative;
- Does not contain synthetics preservatives;
- No animal test.

MECHANISMS OF ACTIONS

The development of AlphaComplete® was based on the synergy of the natural actives combination:

- Tea tree oil, with properties: antibacterial, antiseptic, germicide, astringent, fungicide and anti-inflammatory, besides being a natural preservative. It also has the capacity of good penetration into the skin and mix with the sebaceous secretion with lack of irritation.
- Natural Alpha Bisabolol has anti-inflammatory and anti-bacterial action, inhibiting the protein synthesis of microorganisms, as well as being cicatrizing, soothing, non-irritant and deodorant.



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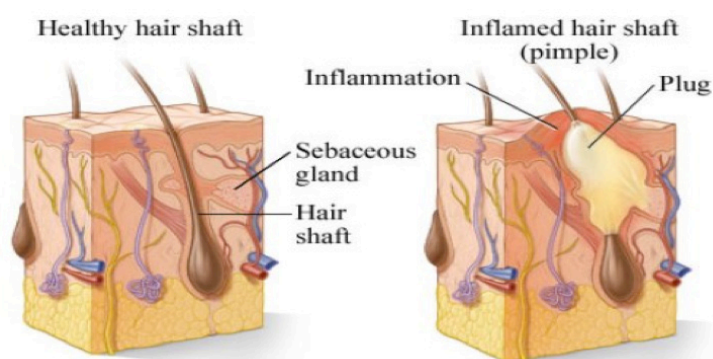
AlphaComplete® Face

ANTI-ACNE ACTION

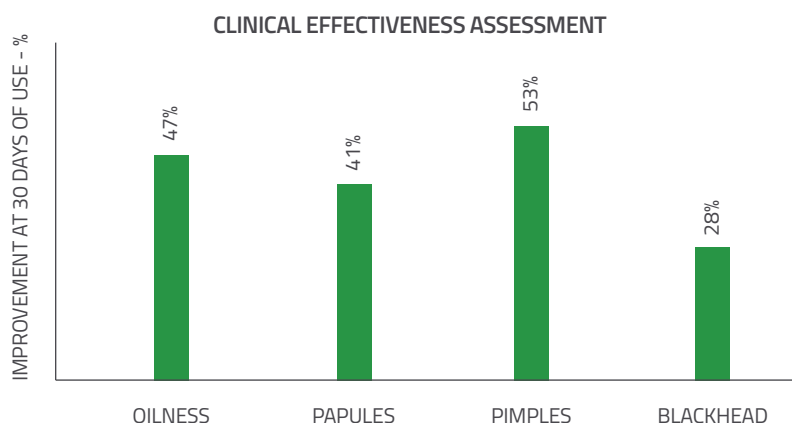


PROVEN EFFICACY AGAINST ACNE

Acne is a chronic inflammatory disease that attacks the sebaceous follicles, which are the composed units by sebaceous glands that produce sebum. It results from an inflammation, or bacterial colonization, or obstruction of these follicles, forming pimples, blackheads, pustules, comedones or cysts on the skin. Its manifestation is linked to several factors, such as genetics, puberty, stress, smoking and uses of some medicines.



The anti-acne efficacy of the **AlphaComplete® Face** composition was established by the Evaluation of the Clinical Subjective Efficacy and Cosmetic Appreciability after 30 days of use.



In the evaluation of clinical efficacy after 30 ± 2 days of usage **AlphaComplete® Face**, the following results were observed:

- 47% of the volunteers presented oiliness reduction (improvement) on the experimental region;
- 41% presented reduction in the number of papules;
- 53% presented reduction in the number of pustules;
- 28% presented reduction in the number of comedones.



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Concerning to the evaluation of Cosmetic Appreciability (opinion of the volunteers), **AlphaComplete® Face** proven be an effective natural alternative and non-irritating to the problems of outbreaks of acne and excessive oiliness on the skin.

- 88% of the volunteers liked of the product;
- 75% considered that the **AlphaComplete®** helped reducing their pimples;
- 59% considered that the **AlphaComplete®** helped reducing their blackheads;
- 75% of the volunteers considered the **AlphaComplete®** effective to reduce skin oiliness.

AlphaComplete® Hair

ANTI-CASPA ACTION

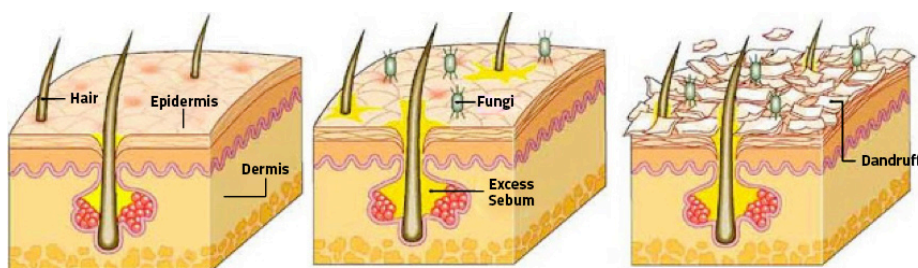


PROVEN EFFICACY AGAINST DANDRUFF

Dandruff is defined as an excessive flaking of the scalp, often accompanied by inflammation and small red lesions called seborrheic dermatitis. Several factors can trigger dandruff and seborrhea, including the oiliness, excessive sweating, stress, poor hygiene, temperature, hormonal changes and the increase of fungi such as *Malassezia furfur*.

In most aggravating circumstances, can lead to dandruff seborrheic dermatitis, a chronic inflammation of the skin caused by excessive sebaceous glands of the scalp, causing erythema, itching and flaking oily.

The challenge was to develop effective actives able to reduce the excessive flaking, irritation of the scalp and elimination of the fungi.



The benefits of **AlphaComplete® Hair** in hair treatment include eradicating fungal microorganisms, irritation, inflammation and excessive oiliness in order to clean and flush the follicle for that dandruff can be eliminated.

Due to anti-inflammatory activity of **Alpha Complete®** enhances the therapeutic potential in inflammation by its action in the inhibition of lipoxygenase and cyclooxygenase, blocking the biosynthesis of leukotrienes and prostaglandins are important chemical mediators of inflammation.

The anti-dandruff efficacy of composition of **AlphaComplete® Hair** was proven by the Evaluation of the Anti-Dandruff Efficacy by Image Analysis with dermatological acceptability accounting the percentage of volunteers that presented a reduction in the total number of scales (dandruff improvement) after 21 days of treatment. This study, evaluated the clinical efficacy in the reduction and prevention of dandruff, also the skin acceptability and apreciability of the qualities of **AlphaComplete® Hair**.

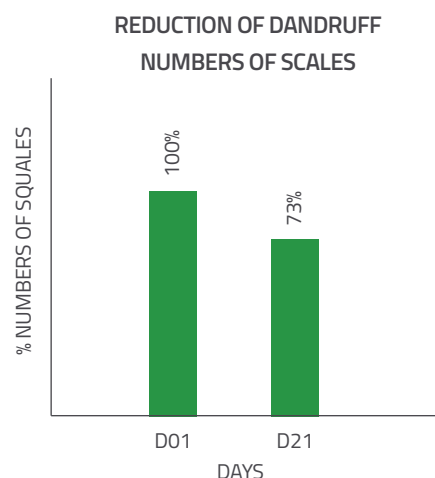
The images below show the improved scaling of the scalp 21 days after the use of **AlphaComplete® Hair**



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d-0

d-21



The analysis of the data presented that there was a statistically significant difference in the number of detached scales before and after the treatment with **AlphaComplete® Hair** indicating the anti-dandruff efficacy with only 21 days of use.

Regarding to the Evaluation of Cosmetics Appreciability (opinion of volunteers), the **AlphaComplete® Hair** proven to be an effective natural alternative and non-irritant in reducing dandruff, flaking, itching relief and control oiliness:

- 85% of the volunteers liked and would buy **AlphaComplete® Hair** ;
- 58% of the volunteers considered the product effective to reduce Dandruff;
- 70% of the volunteers considered the product effective to reduce oiliness of the scalp;
- 73% of the volunteers considered the **AlphaComplete® Hair** effective to relieve itchininess on the scalp.

The **AlphaComplete® Hair** proved to be an effective alternative, natural and non-irritating due to antimicrobial activity of broad spectrum that acts by inhibiting the growth processes of microorganisms that lead to cutaneous manifestations of dandruff and excessive oiliness. It provides the reduction by pruritus, itching, inflammation and excessive oiliness.

AlphaComplete® Body

ANTIMICROBIANA ACTION

PROVEN IN ACTION AID ITCH AND INFLAMMATION

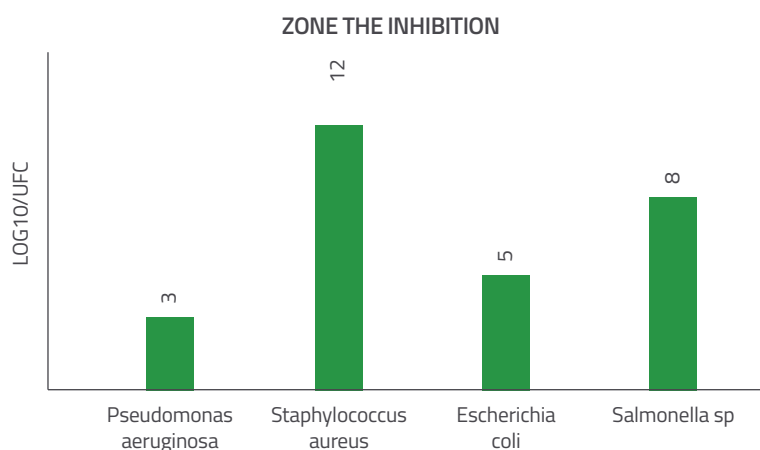
AlphaComplete® Body presented antimicrobial activity against the microorganisms *Staphylococcus aureus* ATCC 6538 and *Pseudomonas aeruginosa* ATCC 15442, as it was able to lead to a significant reduction in microbial population greater than 99.9%, it proves its effectiveness in combating itching and inflammations caused by microorganisms.



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When compared to other synthetic assets, **AlphaComplete® Body** had superior efficacy of antimicrobial protection proving that the use of raw materials from natural sources, clean and sustainable, can provide better performance than the others, often harmful to health and the environment.

The study was carried out in petri dishes with discs of sterile filter paper, which was determined by the sensitivity of the microorganisms tested **AlphaComplete® Body**.



In this test the **AlphaComplete® Body** showed formation of inhibition zone and/ or inhibited the formation of colonies for the microorganisms used, therefore, it is considered that the **AlphaComplete® Body** presents inhibitory action on such micro-organisms.

Time Kill Test

***TIME KILL - Reductional Assessment of Microbial Population**

AlphaComplete® presented antimicrobial activity against the microorganisms *Staphylococcus aureus* ATCC 6538 and *Pseudomonas aeruginosa* ATCC 15442, since it was able to induce a significant reduction in the microbial population upper than 99.9% as data below:

TEST RESULT OBTAINED FOR THE MICROORGANISM STAPHYLOCOCCUS AUREUS ATCC 6538			
Contact time (minutes)	Counting survivors	Decimal reduction	Reduction Percentage
T1	8,00 x10 ³	2,90	99,90%
1	2,00 x10 ³	3,51	99,90%
2	3,60 x10 ³	3,25	99,90%
3	8,00 x10 ³	2,90	99,90%
5	8,00 x10 ³	2,90	99,90%

T1: immediate contact time, collected about 30 seconds of the microorganism contact with the sample

Initial count (UFC/ml): 6,5x10⁶



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TEST RESULTS OBTAINED FOR THE MICROORGANISM PSEUDOMONAS AERUGINOSA ATCC 15442

Contact time (minutes)	Counting survivors	Decimal reduction	Reduction Percentage
T1	5,00 x 10 ³	2,90	99,90%
1	5,00 x 10 ³	2,90	99,90%
2	1,60 x 10 ³	3,39	99,90%
3	3,00 x 10 ³	3,12	99,90%
5	4,00 x 10 ³	4,00	99,90%

T1: T1: immediate contact time, collected about 30 seconds of the microorganism contact with the sample
Initial count (UFC/ml): 4,0 x 10⁶

Microbiological Analysis - References: ABNT NBR ISO 21149:2008, Cosméticos – Microbiologia – Contagem e detecção de bactérias mesófilas aeróbicas. ISO 16212:2008, Cosmetics – Microbiology – Enumeration of yeast and mould.

Laboratório Microbiológico - Avisa Serviços Técnicos em Vigilância Sanitária, Tecnologia e Meio Ambiente Ltda Epp.

Toxicological Data

It was applied **AlphaComplete®** dermatological assessment of the primary and accumulated dermal irritability and cutaneous sensitization compared to a control (patch test).

AlphaComplete® evaluated in volunteers:

- No adverse reactions were detected in the product and control application regions during the whole study;
- No volunteer reported having felt discomfort sensations either with the test product or the control during the study;
- The 3 developed concentrations of **AlphaComplete®** did not induce cutaneous irritation and sensitization during the study. Therefore, it allows the claim of “Dermatologically tested”.

Recommendations

AlphaComplete® Hair

- Scalp Care products;
- Hair care;
- Products for dandruff, anti-seborrheic and to remove oiliness.

AlphaComplete® Face

- Products for preventing and treating acne;
- Products to combat the oiliness.

AlphaComplete® Body

- Bactericide antiseptics and fungicides products;
- Skin Care Products;
- Products that fighting the itching and inflammation of the skin caused by microorganisms.



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Use concentration:

- Scalp Care: 0.5 a 2%;
- Products for treatment and prevention of acne: 2 to 5%;
- Anti-seborrheic and oil-reducing products: 0,5 to 3%;
- Antiseptic, antibacterial and fungicide products: 3 to 5%.

Results

The natural active **AlphaComplete®** has the properties: antimicrobial, anti-irritant, anti-inflammatory, regenerative and healing, providing significant efficacy in the treatment of acne, excessive oiliness and dandruff.

The **AlphaComplete®** has antimicrobial action, bacteriostatic and antiseptic broad spectrum both for the gram positive and gram negative bacteria, besides antifungal activity.

These activities are attributed due the synergism of compounds bactericidal and fungicidal present in the tea tree oil like as terpinen-4-ol and α -terpineol and antiseptic action of alpha bisabolol present in the Candeia oil.

The main mechanism of its action consists in compromising the integrity of the cellular wall of microorganisms and the resulting leakage of cytoplasmic constituents, metabolic and ions. Resulting in inhibition of respiration, making the cell unable to maintain homeostasis, inhibiting their growth (bacteriostatic action) and causing his death (bactericidal action).

Note: All methods are validated in the relevant regulatory laboratories and the results obtained were treated with appropriate statistical power. Citróleo, in partnership with Avisa and IPclin (including the FAPESP Lab.), applied the best scientific protocols that support the real benefits of the studied actives.