



# 5α Avocuta®



Original plant esters to reduce excessive secretion from the skin and scalp.

The avocado, a fruit in which Expanscience has considerable expertise

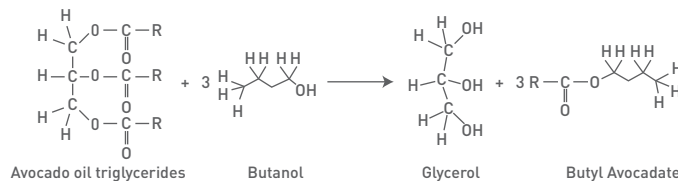


For the past 30 years, Laboratoires Expanscience has been a centre of excellence for avocado oleochemistry. Many patents in the pharmaceuticals and cosmetics sectors now illustrate this know-how. Based on this experience, Expanscience now relies on its own supply chains, giving it control of the entire process from plant to finished product. 5α Avocuta® has been developed against this background.

In geographical and botanical terms, all specialists now agree that the first avocado trees made their appearance on the high plateaux of Mexico and Guatemala. The Maya and Aztec Indians made avocados a staple component of their diet. Much later, the Spaniards would contribute to its propagation in Latin America, under its present-day name of Aguacate.

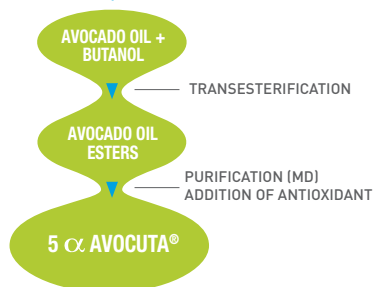
## Original plant esters

Extensive screening identified the fact that the butyl esters of avocado oil have great capacity to inhibit the 5-α reductase type 1 enzyme.



5α Avocuta® is a patented active ingredient obtained using a process for transesterification of the triglycerides of avocado oil into butylic esters. The esters obtained are then purified, mainly by molecular distillation (process patented by laboratoires Expanscience). Lastly, an antioxidant is added (propyl gallate, 0.02%) to ensure optimal stability.

The purity of the active ingredient (in esters) is guaranteed to be higher than 95%.



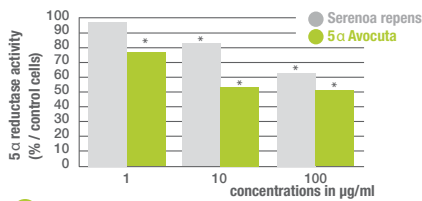
- APPLICATION: sebum regulating treatment (skin and hair)
- DESCRIPTION: oily liquid, transparent to slightly yellow, with a characteristic odour
- INCI NAME: Butyl Avocadate
- DOSE IN USE: 0.5 to 2%
- STORAGE: in nitrogen, away from light and heat

# 5 $\alpha$ Avocuta®



## Inhibition of 5- $\alpha$ reductase *in vitro*

Normal human fibroblasts are treated for 24 hours, either with *Serenoa repens* (a pharmaceutical active ingredient known to inhibit 5- $\alpha$  reductase) or with 5 $\alpha$  Avocuta®, in the presence of radiomarked testosterone. The formation of dihydrotestosterone (DHT) from testosterone is directly correlated to 5- $\alpha$  reductase activity and its quantity is proportional to the quantity of radioactivity measured.



The addition of *Serenoa repens* clearly reduces the activity of 5- $\alpha$  reductase and therefore the quantity of DHT synthesised. At the same concentrations, 5 $\alpha$  Avocuta® is more effective at inhibiting the activity of 5- $\alpha$  reductase (-49% for 100 µg/ml).

Since DHT is a powerful androgen stimulating the sebaceous glands, 5 $\alpha$  Avocuta® appears to be an excellent active substance for improving seborrheic conditions.

## Clinical trials

The following two studies were conducted in collaboration with dermatologists, in order to ensure that conditions were as close to reality as possible. The volunteers who took part in these studies had consulted the dermatologists about their problems of greasy hair or greasy skin, not solved by existing products on the market.

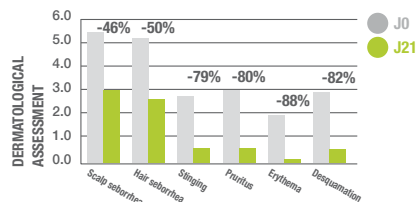
The studies were structured in the same way:

- 1/ Sebum samples taken before and after application using a Sebifix F16 patch. Quantification by image analysis.
- 2/ Scoring by a dermatologist (scale 0 to 9) of the condition either of the volunteers' hair and scalp, or of their skin, before and after treatment.
- 3/ Satisfaction questionnaire on products used completed by the volunteers.

### Effect on hair

Shampoo containing 1% 5 $\alpha$  Avocuta® applied every two days by 27 volunteers (3 weeks).

1/ The cumulative surface area of lipid spots decreased by an average of 69% (13 subjects), demonstrating a marked slowing down of sebaceous gland activity.



2/ The seborrhea was reduced by approximately half, while the stinging, pruritus, erythema and desquamation that frequently accompany seborrheic conditions had practically disappeared.

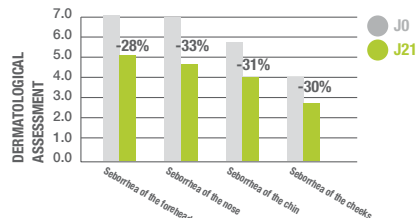
3/ Lastly the volunteers confirmed these results:

- improvement of the greasy appearance of hair (78%),
- soothing effect on irritation (63%)
- reduction of dandruff (67%)

### Effect on the skin

Cream containing 2% 5 $\alpha$  Avocuta® applied twice daily by 23 volunteers (3 weeks).

1/ The cumulative surface area of lipid spots decreased by an average 40%, demonstrating a marked slowing down of sebaceous gland activity.



2/ According to the dermatologist, seborrhea in the T-zone (face, nose and chin) reduced by approximately 30% in three weeks.

3/ Lastly the volunteers confirmed these results:

- improvement of oily appearance (78%),
- reduction of the shiny appearance of the T-zone (78%),
- regulation of regreasing (78%)

5 $\alpha$ Avocuta® offers an original and very effective way of reducing excessive secretions of sebum.

[www.expanscience-ingredients.com](http://www.expanscience-ingredients.com)

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