

Biotech Edge

Derived through advanced biofermentation, Squalene represents the evolution of skin compatible lipids designed by biotechnology. Inspired by the skin's own sebum composition, it restores lipid balance, strengthens the barrier, and enhances moisture retention at a molecular level. Its biomimetic structure ensures deep absorption, antioxidant defence, and long lasting comfort without greasiness. Biotechnologically refined for purity and performance, Squalene delivers nature's protection with scientific precision supporting supple, radiant and resilient skin.



Squalene is a linear triterpene widely distributed in plants, fungi, insects, animals and human body. It is a natural lipid in the skin that imparts robust antioxidant, hydrating, and anti-inflammatory qualities. It acts as an excellent barrier protecting agent against UV radiation induced damage. It further helps retain moisture to promote elasticity and helps with skin flexibility.

Parameters	Details
Chemical name	Squalene
Pack size	500ml /5l /25l
Molecular formular	$C_{30}H_{50}$
Appearance	Colourless and transparent liquid
Content	97.0%~103.0% (calculated on an anhydrous basis)
Microbial testing	Aerobic bacterial count ≤ 100 CFU/g, Mold and yeast count ≤ 100 CFU/g



Moisturizing



Anti-wrinkle



Antioxidant Effects

Applications:

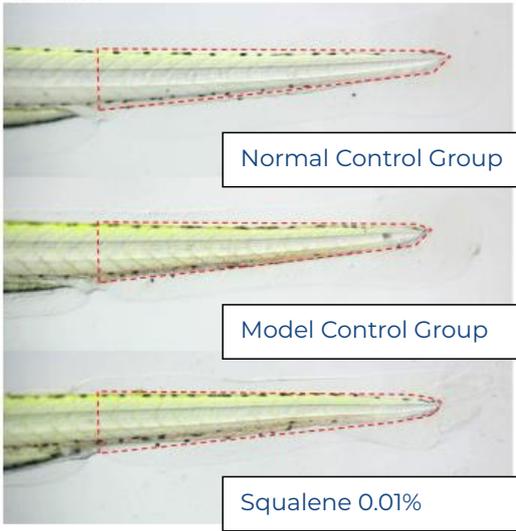
- Moisturizers & Creams
- Serums (Hydrating / Anti-Aging / Repair)
- Facial Oils
- Sunscreens & After-Sun Care

Key Features:

- Prevents water loss, mimics sebum
- Stimulates elnI gene (elastin)
- Boosts collala gene (collagen)
- Reduces ROS, prevents lipid peroxidation
- Resistant to oxidation and effective as a natural antioxidant.

What it Brings to Your Formulation

- **Provides silky, non-greasy texture and enhances spreadability.**
- **Restores the lipid matrix, improving skin resilience and comfort.**
- **Prevents transepidermal water loss (TEWL) for long-lasting hydration.**
- **Compatible with oils, esters, and emulsions in various product types (creams, serums, sunscreens, cleansing oils).**

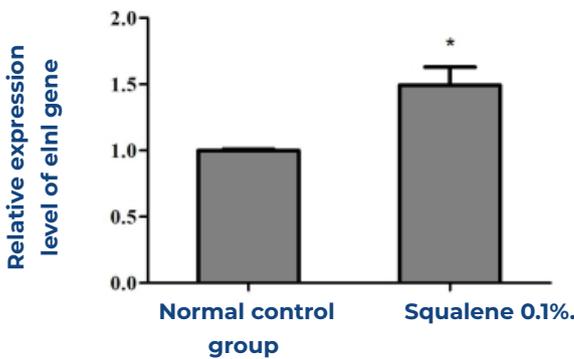


Test Item	Concentration (%)	Efficacy (%)	p-value	Test Results
Squalene	0.01	55	<0.001	Significant

Assessment of Squalene mediated moisturization on Zebrafish tail compared to control

Squalene group demonstrated significantly higher moisturization compared to control.

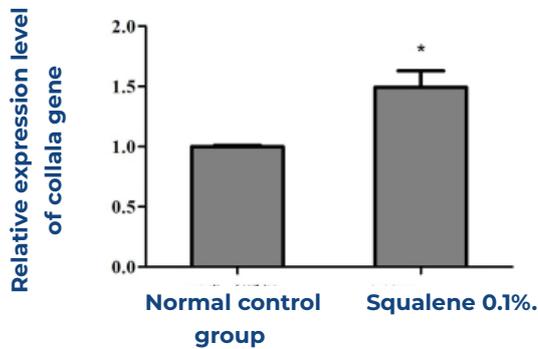
Skin Firming Efficacy of Squalene on Zebrafish



Comparison of eInI Gene Expression in Squalene Treated vs Control Group

Squalene treated group demonstrated a significant increase in the expression of eInI gene which is responsible for elastin synthesis proving robust potential of squalene in imparting firmer skin.

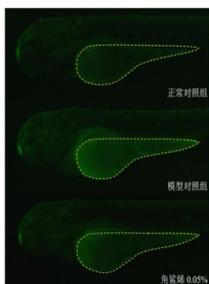
Anti-Wrinkle Efficacy of Squalene on Zebrafish



Comparison of colla1a Gene Expression in Squalene Treated vs Control Group

Squalene treated group demonstrated a significant increase in the expression of colla1a gene which is responsible for collagen synthesis proving excellent potential of squalene in reducing wrinkles

Antioxidant Potential of Squalene on Zebrafish



Normal Control Group
Model Control Group
Squalene 0.05%

Test Item	Concentration (%)	Efficacy (%)	p-value	Test Results
Squalene	0.01	55	<0.001	Significant

Antioxidant efficacy of Squalene was assessed on zebrafish yolk sac using confocal microscopy and a fluorescent dye that emits higher signal corresponding to the ROS levels. The yellow dashed line represents the region under study.

Squalene treated group was able to significantly scavenge the ROS compared to the Model control as indicated by the fluorescence intensity which was comparable to normal control.

Clinically

Proven Benefits:

- Provides deeper and sustained hydration
- Visibly reduces wrinkles and imparts firmer skin
- Confers excellent antioxidant protection to skin cells against UV induced damage
- Reinforces skin barrier and its recovery