

Skin color & Depigmenting agents

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12/8/2024

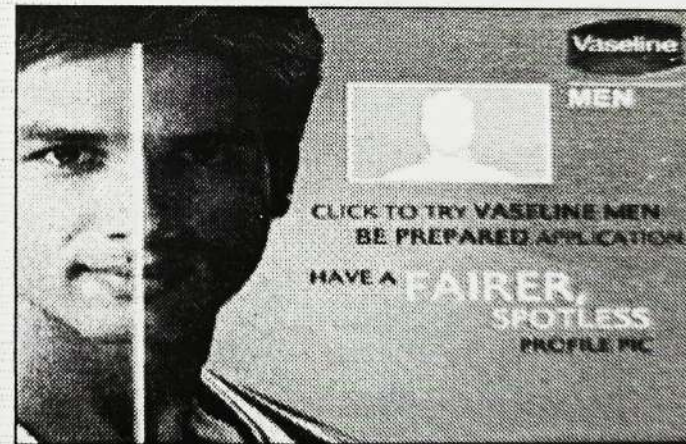
Saja Hamed, Ph.D

مستخلصات النباتات
التي لها تأثيرات
على البشرة

Skin color & Depigmenting agents



مايكل جاكسون



Prof Saja Hamed

صفحة الصبغة التي يتساقط في حماية الجلد من أضرار أشعة UV
بالتالي إذا شخص ذو بشرة غامقة تكون لديهم الخلايا أعلى نسبته

Dendritic melanocytes

فبالتالي حماية من
الشمس عندهم أعلى

□ Primary determinant of skin color:
amount and type of melanin.

حد ما زانی رع
نظر البنية
الغنية

دال انواع
من
eumelanin
pheomelanin

□ Synthesis of melanin occurs in
discrete organelles called
melanosomes that are synthesized by
melanocytes and subsequently
transferred to and processed by
keratinocytes in the epidermis.

تشكلوا هنا
في مولود
basal layer

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Melanocytes
(basal layer)

→
تشكل

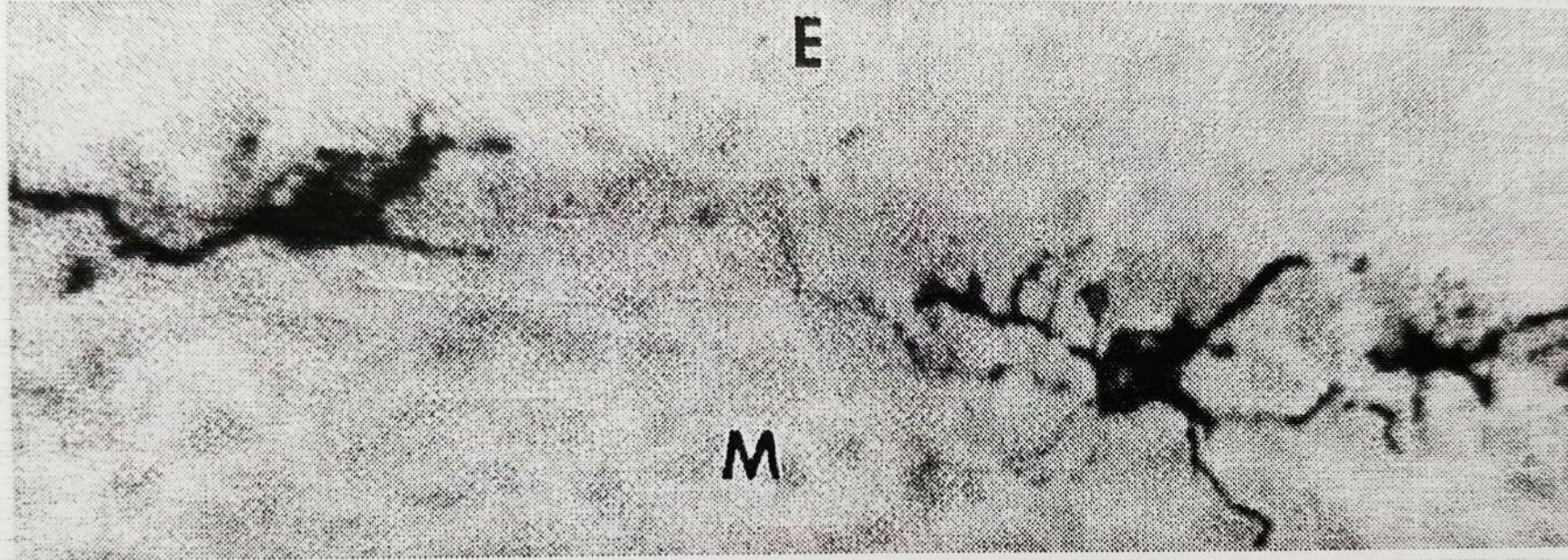
Melanosomes
(discrete
organelles)

transferred
→
تنقل

Keratinocytes

Dendritic melanocytes

فہر لٹائی حمایہ ہڈ
السجس عہدہم اعلیٰ



حکینا عہدہ ہار Basic skin ہا، کٹا یا ہی راتی ہشکر
Keratinocytes وچ ہا ہشکر لہ Keratinocytes
melanin) melanosomes.

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← ہا ہا melanosomes ہکڑ بہ افلی Melanin

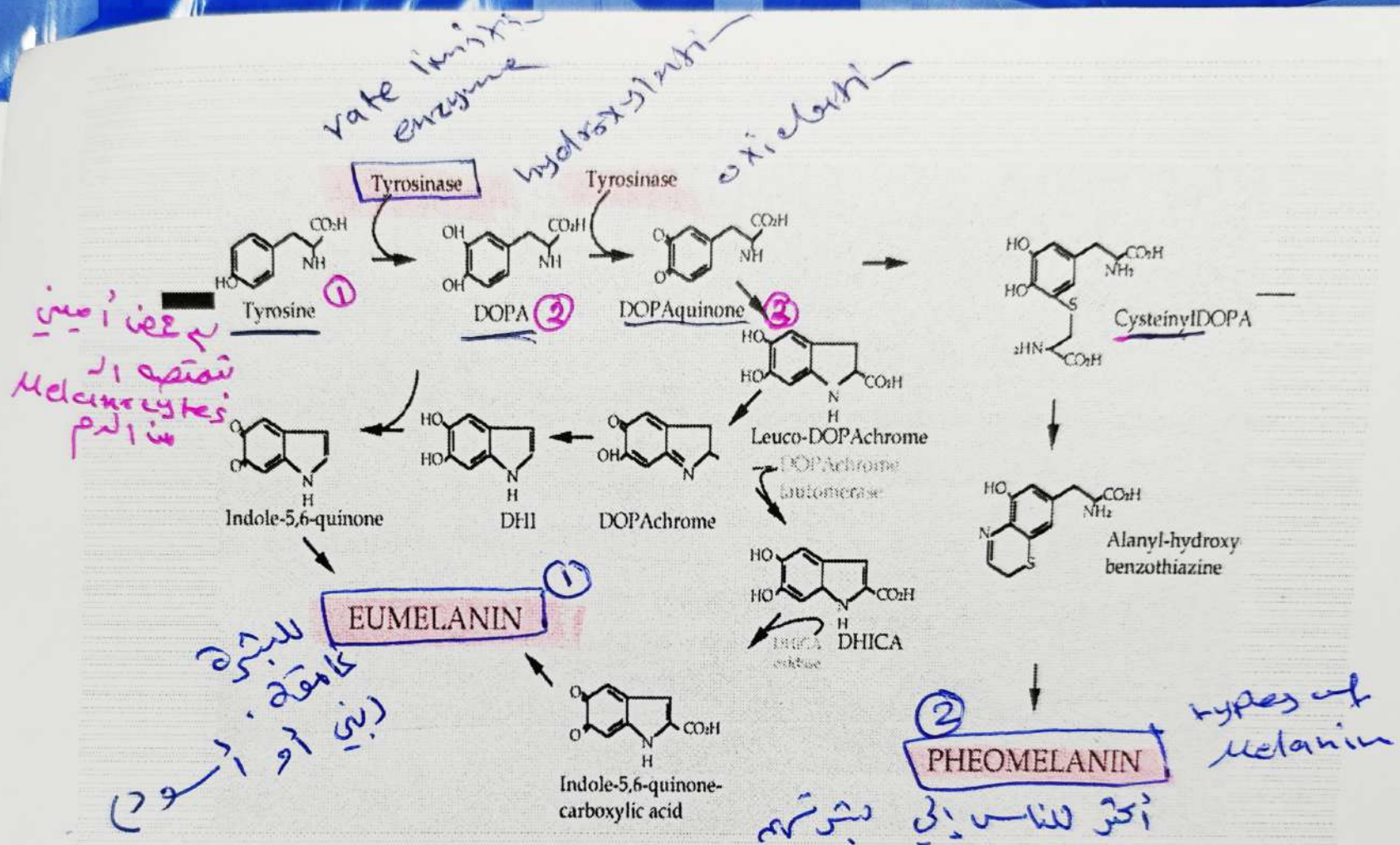
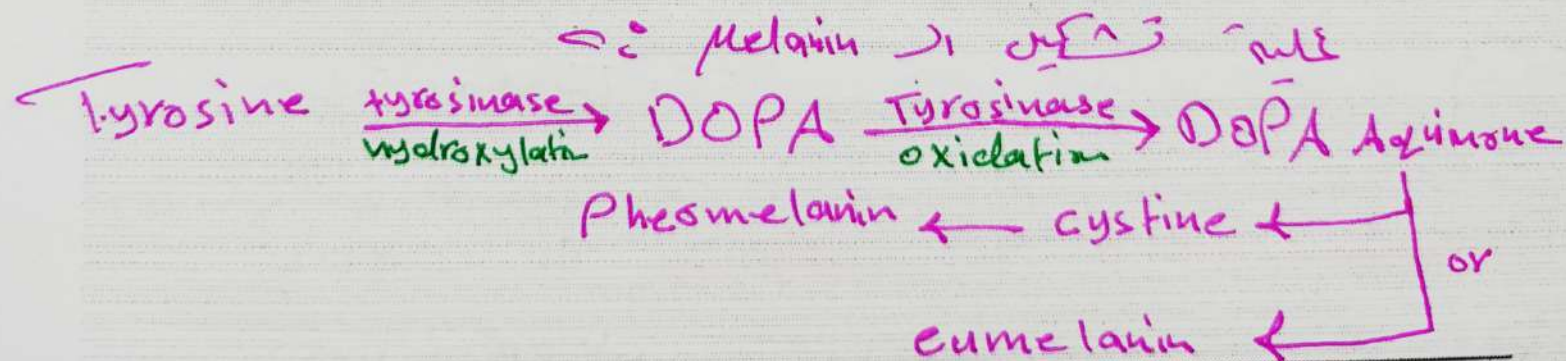


Figure 2. A modified representation of the Raper-Mason pathway (King et al., 1995)

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- Synthesis of melanin begins with the amino acid tyrosine *amino acid*
- Tyrosinase is the rate limiting enzyme *الإنزيم المحدد* for melanin biosynthesis
- Tyrosinase catalyses the hydroxylation of tyrosine to 3,4-dihydroxyphenylalanine (DOPA) *1* and the subsequent oxidation of DOPA to DOPAquinone *2*.

تسمى ما حكيلا بالخطية

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*Hydroxylation - 1
Oxidation - 2*

يمكن إنتاج الميلانين من مختلف الأنواع

□ Melanin pigmentation is due to two main groups of pigments }

□ The black to dark brown, insoluble
① eumelanins, and the alkali soluble*

② pheomelanins, ranging from yellow to reddish brown*

□ The **eumelanin** production proceeds through the intermediates

leucodopachrome to DOPAchrome

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*Pheomelanin
e.g. skin red is due to
DOPAquinone + Cysteine

eumelanin is due to
DOPAquinone →
leuco-DOPAquinone →
eumelanin ← DOPAchrome

Two types of melanosomes

المقا، نوعين هما البني + الاسود

- Eumelanosomes are brown-black and oval shaped.
- Pheomelanosomes are reddish and round.
- Pheomelanosomes are formed through condensation with cysteine or glutathione.

كل ما زاد صبغة melanin يكون دونه الشمس اقل



Eumelanin

A dark pigment, usually brown or black in color

خامقة



Pheomelanin

A lighter pigment, usually red or yellow in color

فاتكة

<https://www.crigenetics.com/blog/the-science-behind-having-red-hair>



Figure 13-1a Fitzpatrick Type I—Very fair, red hair, blue eyes, and freckles. Always burns, never tans.



Figure 13-1b Fitzpatrick Type II—Fair skinned, with blue, hazel, or green eyes and blond or red hair. Burns easily.



Figure 13-1c Fitzpatrick Type III—Fair skinned with any color eye or hair color. Sometimes burns, gradually tans.



Figure 13-1d Fitzpatrick Type IV—Typical Mediterranean/Caucasian skin; medium to heavy pigmentation. Rarely burns, always tans.



Figure 13-1e Fitzpatrick Type V—Mediterranean skin type, rarely sun-sensitive. Tans.

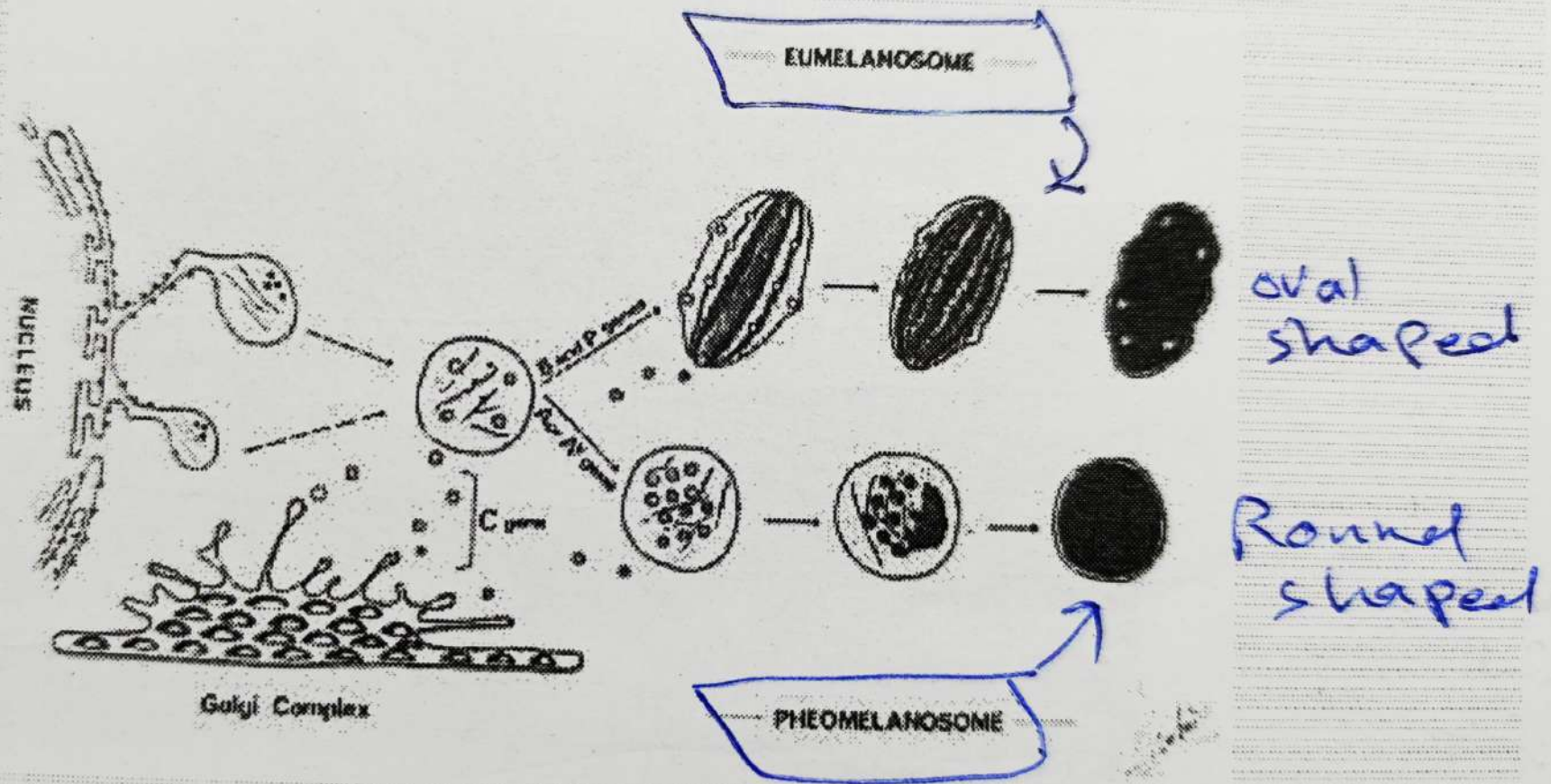


Figure 13-1f Fitzpatrick Type VI—Black skin; rarely sun-sensitive. Tans.

كل ما زاد لون البشرة وهاه
انخفاضه و ربح تكون تركيز الميلانين
أعلى وبالتالي ربح تكون الحماية من الشمس
أعلى و ربح يكون اقل و sun burning
وتكون الميلانين اقل و ربح تغير البشرة
عند تعرضها للشمس انخفض بسهولة (Tan)

sun-Burning
Tanning
easily.

Melanosomes are complex organelles formed on the Golgi Apparatus



□ In darker-pigmented individuals: ميزان أصباغ البشرة الغامقة

① Melanocytes produce more melanin بسبب النشاط العالي لـ Tyrosinase

② The melanosomes larger and more heavily melanized نسبة الميلانين عالية (لهيكل بشرة غامقة)

③ Melanosomes undergo degradation at a slower rate الميلانين مع تضرر بـ Keratinocytes فترة أطول لأنه degradation لها بطيء لهيكل بشرة غامقة لفترة أطول

(Szabo et al: Racial differences in the fate of melanosomes in human epidermis. Nature, 222: 1081, 1969)

Ultraviolet light and skin color

- Melanogenesis or "tanning" occurs when skin is exposed to UV light
- Skin's major defense against further UV damage
- Increased melanin production and enhanced melanosome transfer to Keratinocytes
Melanocytes → Keratinocytes.

لما تتعرض البشرة لأشعة الشمس فترة أطول ف من ضمن الدفاع mechanism
يعني كإجراء وقائي وحماية من البشرة بتقوم كثير من صبغة الميلانين

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حتى تحمي الجلد من الضرر الناتج عن التعرض للـ UV rays العملية بتسمى

↓
Melanogenesis (Tanning)

تصبغات

* IPD → البشر للبرق
لبشرة وشيخ فوري

* Delayed → بعد وقت قليل
98 - 72 hours

Sun exposure
may lead to
immediate
pigment

darkening (IPD)
followed by

② delayed tanning.

The table
compares effects
of both on
melanocytes

Comparing Delayed Tanning and Immediate pigment darkening

Process	Immediate Tan (UVA and visible)	Delayed Tan (UVA and UVB)
① Onset	Instantaneous, during exposure; fades immediately	Gradual, beginning at 48-72 h; lasts for weeks
② Sunlight	UVA (320-380 nm), much less by UVB	UVB (290-320 nm), less by UVA (320-390 nm)
③ Melanogenesis	No numerical increase	Numerical increase by multiple exposure
④ Melanocyte	No numerical increase	Synthesis of new melanin
⑤ Melanin	Photooxidation of pre-formed melanin	Markedly increased activity
⑥ Tyrosinase	No increased activity	New synthesis; increase in transfer to keratinocytes
⑦ Melanosome	No new synthesis; increase in transfer to keratinocytes	New synthesis; increase in transfer to keratinocytes

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زيادة excessive إنتاج Melanin، hyperpigmentation، زيادة صبغات

* الأضرار الناتجة من زيادة إنتاج وتراكم الميلانين في

□ Excessive production and accumulation of melanins characterize a large number of skin diseases, which include acquired hyperpigmentation, such as melasma, solar lentigo and post-inflammatory hyperpigmentation.

الكلف

مع نكي عنه بالتفصيل

□ Such hyperpigmentary diseases, especially when they occur in the head and the neck, frequently result in loss of confidence and self esteem of the affected person.

الأعضاء المعرضة
للسم من أشعة
مباشرة من مستقر

تأثيرها مع يكون نفسي على الأشخاص.

Nordlund JJ, Boissy RE, Hearing VJ, King RA, Ortonne JP. The pigimentary system: physiology and pathophysiology. New York: Oxford University Press, 1998. Ortonne, J.P., Nordlund, J.J.: Mechanisms that cause abnormal skin color. New York, Oxford University Press, 1998

زيادة في صبغة الجلد (hyperpigmentation) من الجلد (Melanin) ، علة excessive زيادة

Acquired hyperpigmentation

Skin diseases and conditions

- Melasma الكلف
- Riehl's melanosis
- Poikiloderma of Civatte
- Erythromelanosis follicularis
- Linea fusca
- Post inflammatory hyperpigmentation

Exogenous causes

Ultraviolet exposure (e.g. melasma, solar lentigines, ephelides)

Photosensitizing agents (e.g. berloque dermatitis due to bergamot oil, furocoumarines)

Drugs (e.g. estrogens, tetracyclines, amiodarone, phenytoin, phenothiazines, sulfonamides)

Cosmetics

Other causes

Pregnancy

Liver disease

Addison's disease

Hemochromatosis

Pituitary tumors

hypo thyroidism

Melasma

كلف

حالة جلدية تتميز بتغير لون
الجلد مما يولد مظهر من الورم

□ Cholasma or "mask of pregnancy" أسماء شائعة

□ Very difficult to treat (علاج صعب جداً)

□ Presents as irregular shaped blotches of light to dark brown pigmentation يقع عن منتظمة
لونها من بني فاتح
لبني غامق

□ Usually seen on the upper lip, nose, cheeks, chin, forehead, and sometimes the neck
أما كذا يوجد
الذقن
الجبين
الرقبة

Chin الذقن
Forehead الجبهة

□ Most commonly seen in the areas that receive sun exposure

موجود بالعناطة المستعرضة للوجه الشمس

dermis تكون نزلت في Dermis melasma
وهو أصعب في

Melasma

من يتصبغ أكثر شي + الأسباب للكلف

Melasma.

- Seen most often during pregnancy or oral contraceptive use
- Melasma may diminish in the months following pregnancy or after discontinuing OC, the condition often persists, taking up to five years to resolve
- More common in women of darker skin types
- Estrogen and UV light are major contributing factors
- Other factors include: genetic predisposition, nutritional deficiency, and other hormone such as progesterone
- Antiepilepsy drugs (Hydantoin and Dilantin)
- Many women develop melasma on the upper lip after hot wax has been used to remove hair
- Melasma also occurs in men (mostly Middle Eastern or Asian)

يمكن تختفي شكل اشهر بعد الحمل
ويمكن لا
ويمكن يتراجع بعد توقف موانع الحمل
تأخر في علاجها عند الحمل
القائمة

في حالات هائلة
تحتاج لسنوات حتى
تتراجع

سبب ظهور
الكلف بهاء
المنطقة

<http://dermnetnz.org/colour/melasma.html>

What causes melasma?

التعريف

اح احط هايلاير عالمهم
والباقي اقراوه قراوه

انواع

The cause of melasma is complex. The pigmentation is due to overproduction of melanin by the pigment cells, melanocytes, which is taken up by the keratinocytes (epidermal melanosis) and/or deposited in the dermis (dermal melanosis). There is a genetic predisposition to melasma, with at least one-third of patients reporting other family members to be affected. In most people melasma is a chronic disorder.

Known triggers for melisma include:

الاسباب

- Sun exposure—this is the most important avoidable risk factor
- Pregnancy—in affected women, the pigment often fades a few months after delivery
- Hormone treatments—oral contraceptive pills containing oestrogen and/or progesterone, hormone replacement, intrauterine devices and implants are a factor in about a quarter of affected women
- Certain medications, scented or deodorant soaps, toiletries and cosmetics—these may cause a phototoxic reaction that triggers melasma, which may then persist long term
- Hypothyroidism (low levels of circulating thyroid hormone)

عوامل

هذه روتين العناية بالبشرة لشخص هذه
كلف به من

علاجه (مستوى)
الوقاية

Regimen for Patients with Melasma

Morning

1. Wash with an α -hydroxy acid-containing cleanser.
2. Apply a product with a combination of hydroquinone and kojic acid.
3. Apply a UVA/UVB sunscreen.
4. Wear a hat and avoid sun when possible.

Evening

1. Wash with an α -hydroxy acid-containing cleanser.
2. Apply a retinoid such as Retin-A™, Renova™, Differin™, Tazarac™, or Alustra™.

Undergo an in-office peel every two weeks (i.e., Jessner's, glycolic, or salicylic acid). Slowly increase peel strength as tolerated.

NOTE: Some patients develop exogenous ochronosis, or increased pigmentation, on exposure to hydroquinone. A good history should be taken, and if the patient is sensitive to hydroquinone, it should be avoided. Azelaic acid (Azelex™) is another option that is useful in all patients, but especially in those patients who cannot tolerate hydroquinone.

تزيد فيه تدريجي
دب مرة كل أسبوعين
(طبقات لبقير)

الماضي في الحمل ~~يجب~~ يتجنبوا التعرض المكثف لأشعة الشمس
ويستخدموا واقي شمس دافقاً وإذا احتاجوا
يستخدموا شيئاً للتصبغات فالهيدروكورتيزون آمن هو
Azelaic acid

While there is no specific treatment for pregnancy pigmentation problems, staying out of the sun can definitely diminish the amount of discoloration you experience, so can wearing a sunscreen anytime you are outdoors.

While the jury is still out on the safety of traditional skin-lightening ingredients such as hydroquinone during pregnancy, Jamal says there are others with an established safety profile you can safely try.

"You can use azelaic acid, which is good for pigment, as well as any topical vitamin C product which helps suppress pigment naturally," she says.

<http://www.webmd.com/baby/features/pregnancy-skin-care-get-that-glow?page=2>

Freckles النمش

تقع لونها بني
خام

□ Small pale-brown spots, usually found in light-skinned individual with light hair or red hair

تظهر للناس ذوي بشرتهم فاتحة أو شعورهم اشقر

تظهر في الطفولة بين
عمر سنتين لأربع سنوات

□ Appears in early childhood between the ages of two and four years

أو أكثر

□ Commonly occur in areas of skin exposed to the sun (face, shoulders, and the upper back)

اماكن ملامسة الشمس

□ In the summer they become darker

بالصيف يزيد انتاج الميلانين في بصيلات الجلد او لونه

Freckles.

عبارة عن بقع جلدية
تظهر نتيجة التعرض
المستمر لأشعة الشمس
وتكثر عادة مع تقدم العمر.

Solar Lentigo

Sun spots.

- Macular brown lesions usually 1 cm in diameter شكلها بقع سطحية بنية غير منتظمة الشكل
- Sun rather than age is the causative factor
- Face ^① and backs of hands ^② ^③ أماكن ظهورها ←
- Seldom seen among patients under 50 → "senile lentigos"

تظهر أكثر عند المسنين أي بعدوا عن سن 50 سنة
لهذا سميناها lentigo

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*'Sun spots' on the
back of the hand.*

Postinflammatory Hyperpigmentation

- Caused by variety of skin disorders
- Presents as irregular darkly pigmented spots arising in areas of previous inflammation
- It is a consequence of increased melanin synthesis in response to a cutaneous insult
- Not frequently among patients with darker skin types
- Minor conditions such as acne, eczema, and allergic reactions can lead to PIHP
- In addition, burns, surgeries, and trauma, or treatments such as chemical peels and laser resurfacing can precipitate it

يمكن تغير بسبب
الأكزيما أو acne
أو غيرها

بالحساسية التي لها
التهاب
والحرق

من بين سببين
مبيات

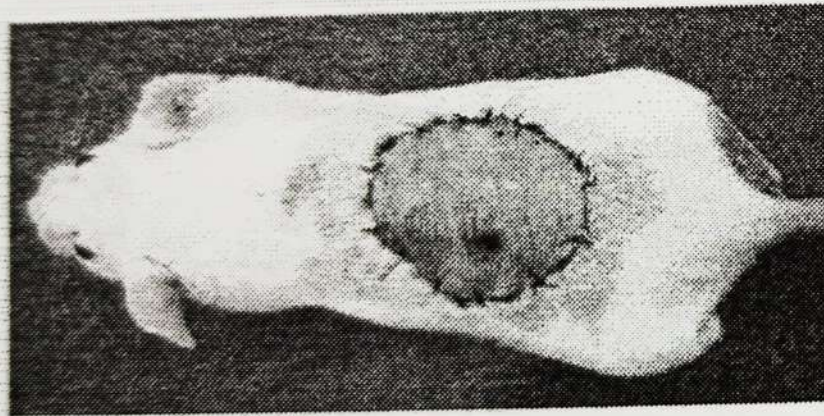
كحان مبيات

acne
ليزر
في skin

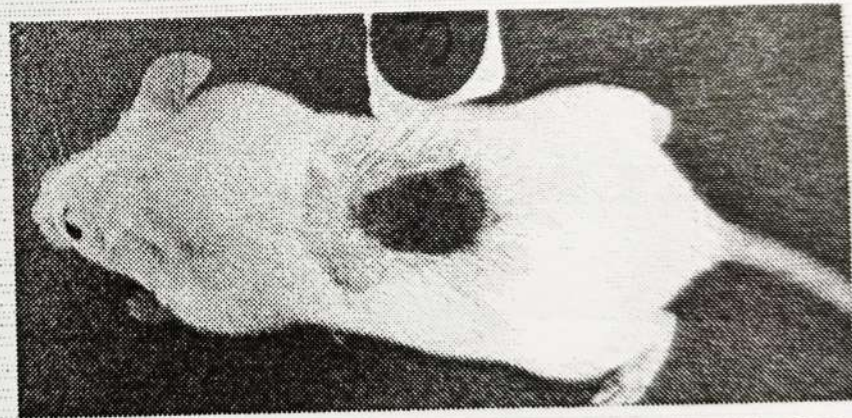
مثل Melasma

Hyperpigmentation of skin grafted on burn patient that is a consequence of wound healing and postinflammatory

processes (Nordlund, J.J. and Z.A. Abdel-Malek, Mechanisms for postinflammatory hyperpigmentation and hypopigmentation. *Prog Clin Biol Res*, 1988. 256: p. 219-36)



#6348, 4/9/03



7/1/03

Hyperpigmentation of human skin grafted to immunocompromised mice.

(**Saja H. Hamed**, Penkanok Sriwiriyanont, Mitchell A. deLong, Marty O. Visscher, R. Randall Wickett, Raymond E. Boissy. Comparative efficacy and safety of deoxyarbutin, a new tyrosinase-inhibiting agent. *J Cosmet Sci.*, 57(4): 291-308, 2006)

Postinflammatory Hyperpigmentation

- ❑ Difficult to treat because it occurs in individuals susceptible to hyperpigmentation following inflammation (but resolve better than melasma)
- ❑ Further inflammation, as induced by peels or lasers, would worsen the process
- ❑ Only nonirritating topical products are potentially useful to treat this condition (e.g. kojic acid, retinoids)
- ❑ Best treatment approach is sun avoidance, sunscreen use, and patience because these lesions tend to improve with time

صعب علاجها لأنها
تظهر عند الناس ذوي
عندهم عُرضة
للتصبغات

بتدبير الحالة و
سوء مع استخدام
علاجات المهيجات

أفضل فيها - العلاج ② →
① (e.g. kojic acid, retinoids)

③ sunscreen use, and patience because these lesions tend to improve with time

Postinflammatory Hyperpigmentation

- Very important to avoid irritating
① cosmetics, harsh scrubs, excessive
peelings..etc ② ③
- Complete holiday from all of your
④ makeup will help (one of those could
be the problem)

اشياء تاريم تجنبها
بالعلاج ١
فان تعثر
العلاج

Depigmenting Agents

الحملا صكيب عنها وبع

ما خلف الاليدار

ا، عو، بتكون اهل

Depigmenting agents and reported effect on the melanin synthetic pathway

Before melanin synthesis

- Tyrosinase transcription: Tretinoin

During melanin synthesis

- Tyrosinase inhibition:
 - Hydroquinone
 - 4-Hydroxyanisole
 - 4-S-CAP and derivatives
 - Arbutin
 - Aloesin
 - Azelalio acid
 - Kojic acid
 - Emblica
 - Tyrosol
- Peroxidase inhibition: Phenols
- Product reduction and ROS scavengers:
 - Ascorbic acid
 - Ascorbic acid palmitate

After melanin synthesis

- Tyrosinase degradation:
 - Linoleic acid
 - α -Linolenic acid
- Inhibition of melanosome transfer:
 - Serine protease inhibitors
 - Leathins and neoglycoproteins
 - Soybean/milk extracts
 - Niacinamide
- Skin turnover acceleration:
 - Glycolic acid
 - Lactic acid
 - Linoleic acid
 - Liquiritin
 - Retinoic acid
 - Helix aspersa Müller

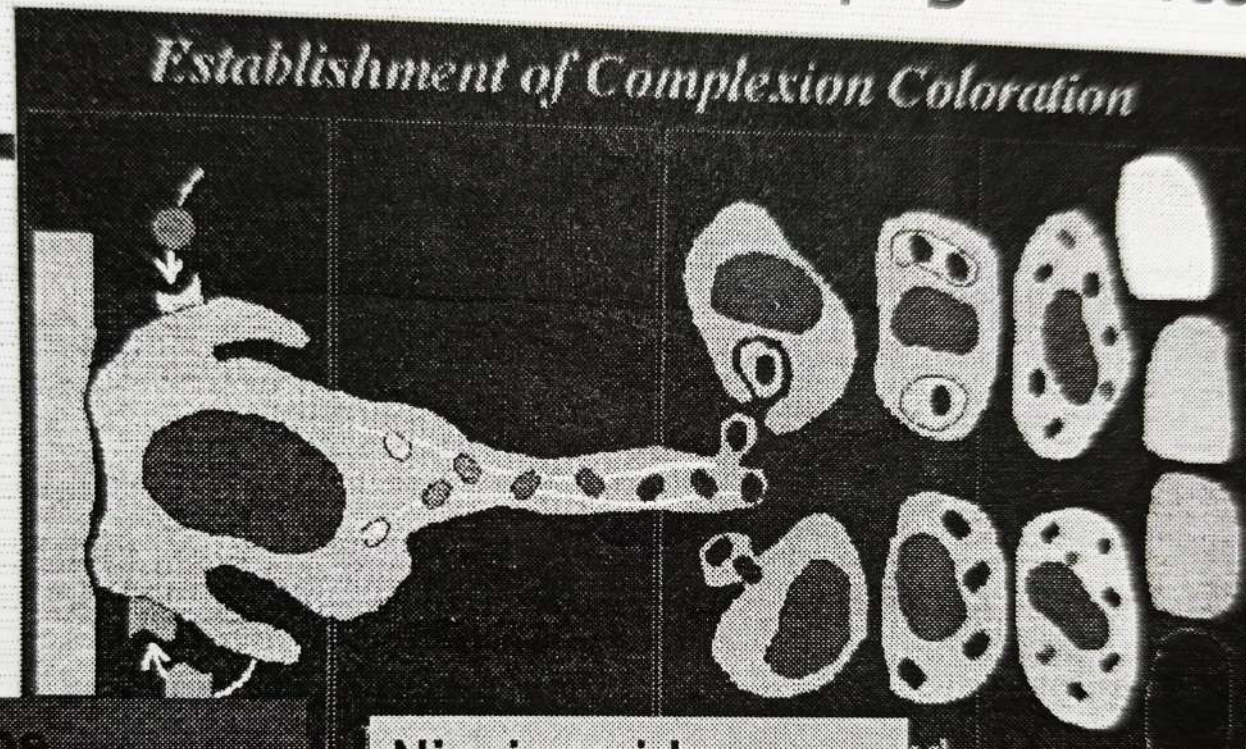
4-S-CAP = 4-S-cystaminyphenol

Box 15.2 Depigmenting agents and reported effect on the melanin synthetic pathway. (Modified from Briganti S, Camera E, Picardo M 2003 Chemical and instrumental approaches to treat hyperpigmentation. Pigment Cell Research 16: 1-11)

Prof. Sara Hamed

Main strategies for depigmentation

نفس
الوجه



Hydroquinone
Kojic Acid
Arbutin

Oleic acid, linoleic acid
and or α -linolenic acid
Licorice extract
Nigella
Arbutin (CAE)

Niacinamide
Soy milk and
protein

AHAs
BHA
Linoleic acid

Retinoids

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Depigmenting Agents

- Although there are many products available, the number of effective agents to treat hyperpigmentation disorders is relatively small

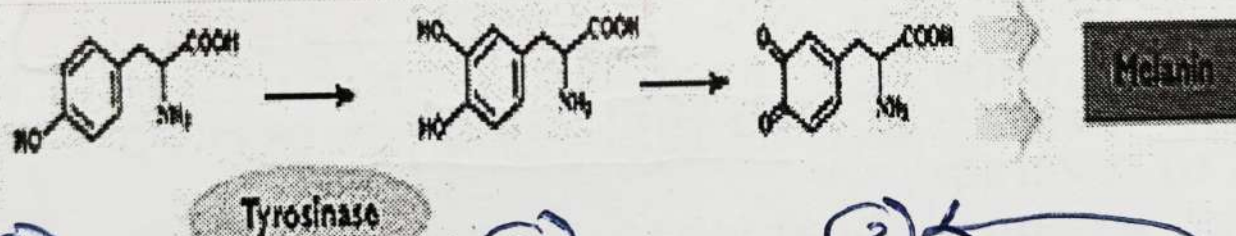
ي كثر منتجات
للتصبغات بالوجه لكن عدد قليل منها مثبتة فعاليتها

- Most of these agents require months of use for improvement to be seen

استخدام هاد المنتج لازم يكون
لأشهر حتى نشوف النتيجة

1 Tyrosinase Inhibitors

- Binding of an inhibitor to the active site of tyrosinase results in decreased melanin formation.

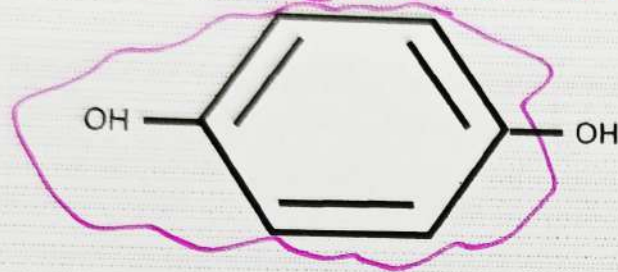


- ① ② ③
- Hydroquinone, kojic acid, and arbutin are competitive inhibitors of tyrosinase that are currently being used in drugs to ameliorate hyperpigmented lesions and in cosmetics to lighten skin complexion.

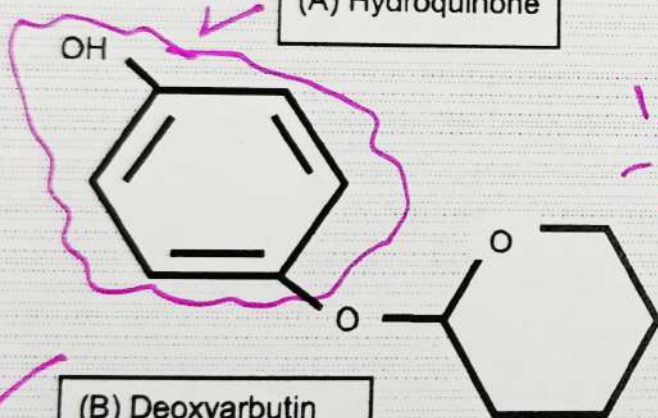
الاصفاد
لتخفيف التصبغات
لتفتيح البشرة

هون بيك ما يعني (Tyrosinase) يرتبط بال Tyrosine ← ح. يعني
competitive inhibitor ويربطها بال ، ف ما يقدر يوصل تصبغ ، الميلانين
وينقل هيك من التصبغ .

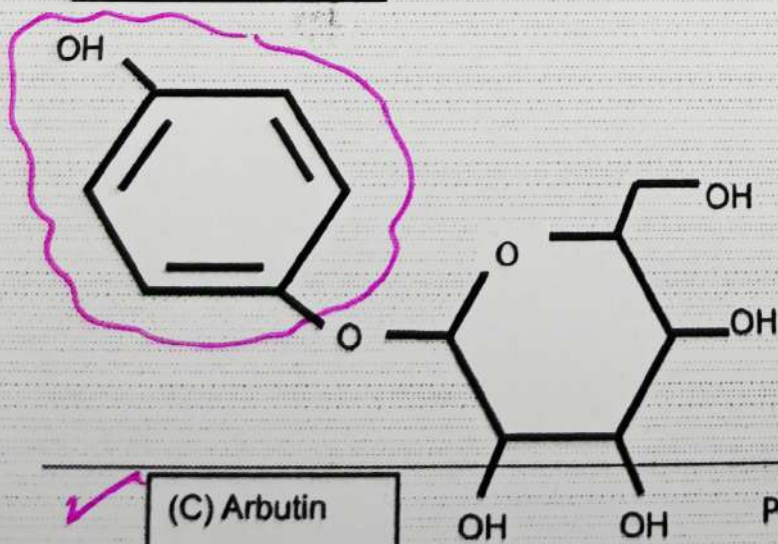
competitive inhibitors



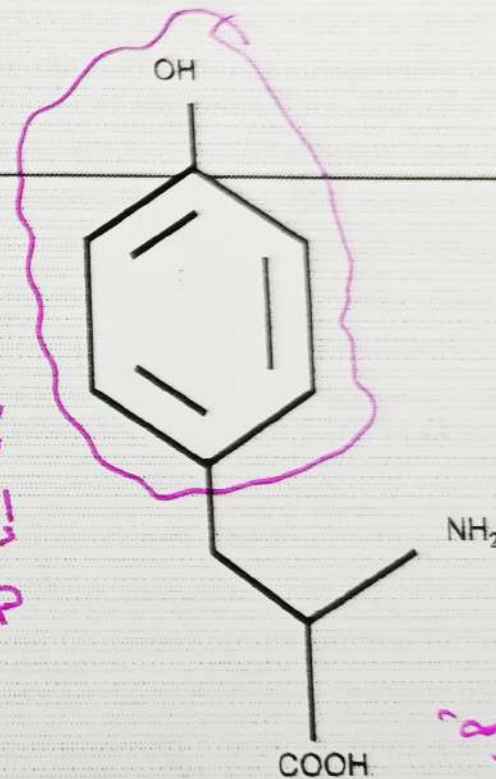
(A) Hydroquinone



(B) Deoxyarbutin



(C) Arbutin



(D) Tyrosine

كل ما يتشابه
بالقوة السالبة
لـ OH - group

Tyrosinase inhibitors:

a. Hydroquinone

- ❑ Used in OTC and prescription drugs as a skin lightening agents حسب التركيز ①
- ❑ Occurs naturally in many plants as well as in coffee, tea, beer, and wine ②
- ❑ It exerts its depigmenting effect by inhibiting tyrosinase دوره الألبان ③
- ❑ Available OTC in 2% concentrations and by prescription in 4% concentration
- ❑ 4% concentration is more irritating and more likely to cause side effects
- ❑ Due to safety concerns (potential mutagenic properties), its use has been banned as cosmetic depigmenting agents in European Union and Japan and is highly regulated in Asia

سبب الخوف من الـ Mutagenic - خطر استخدامه
في cosmetic بأوروبا واليابان

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وجوده بشكل طبيعي
في فطر الفطر
عشان تفتحوا البشرة
أولاً !!

استخدامه باستثناء
الوجه

NH₂

حالياً لها دواء يستخدم مع مركبات تائية مثل Triderma
 Tyrosinase inhibitors: ^{التي تكون دواء}
 a. Hydroquinone ^{والتي تستخدم لفترة معينة ولكن}

- Several new combination agents are now available: a prescription drug containing 4% HQ, tretinoin and low potency fluorinated steroid is available for melasma treatment
- Topical use of HQ may lead to exogenous ochronosis ^{مع تحكي عنها بعد}
- It is asymptomatic blue-black macules in the area of HQ application that occur after prolonged use of HQ and difficult to reverse
- Occur more commonly among patients with darker skin types
- It is advisable to use it in four-month cycles only, alternating it with kojic acid, azelaic acid, and other depigmenting agents ^{يُفضل استخدامه فقط 4 أشهر ولها بآلة التبدل إلى مستحضرات}
- Just use it on affected area/spot ^{فقط على المنطقة المصابة}
- **Not** to be used in pregnant women ^{محظور}
- Contact with the nails should be avoided while using hydroquinone ^{لا تلمس بالأظفار}
- One may notice irritation of the skin following HQ use manifested by an itching sensation and redness ^{س.ع. من HQ}

Kojic acid
azelaic acid

Prolonged HQ usage
may lead to
untoward effects like

exogenous
ochronosis.



معالج

استخدام ال HQ لفترات طويلة و

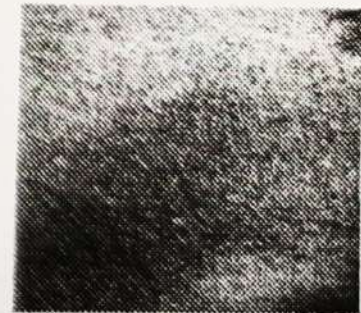
بتراكيز عالية

- عادةً يصير مع الناس التي بشرتهم غامقة

- يكون على شكل spots ك blue-black

- ويكون غير منتظمة عليه كالحب

Prof Saja Hamed



Tyrosinase inhibitors:

a. Hydroquinone



- HQ oxidation to highly reactive toxic quinone, either by tyrosinase interaction ^① or through spontaneous oxidation ^②, is believed to be participating in toxic degradation of melanocytes, including the melanogenic apparatus.

بمسببات التفاعلات
بطريقتين ① و ②

تأثير هائل على
السمية
بمعدل تلف الخلايا
Melanocytes

- Reactive quinones are thought to indiscriminately bind and damage lipids, proteins, and nucleic acid.
- Be careful: if a cream contain hydroquinone turned its color to light brown → stop using it

بترتبط بالدهون
البروتينات
و DNA
Melano cells
damage.

- Passi, S., Nazzaro-Porro, M., 1981. Penney K.B., Smith C.J., Allen, J.C., 1984. Palumbo, A., d'Ischia, M., Misuraca, G., Prota, G., 1992. Briganti, S., Camera, E., Picardo, M., 2003

Prof Saja Hamed

إذا كان لون كريم فيه HQ وكان لونه بني فاتح أو توقف عن استخدامه
لأنه يكون تآكسد وفيه مواد سامة.

Tyrosinase inhibitors:

b. Bearberry and Arbutin

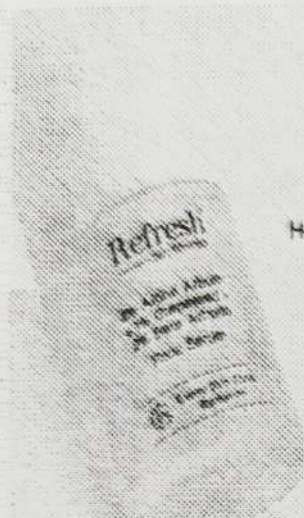


- ☐ Arctostaphylos uva ursi (the bear's grape)
- ☐ Arbutin (hydroquinone-beta-D-glucopyranoside) is the main constituents
- ☐ Consists of a molecule of HQ bound to glucose
- ☐ Its effectiveness is questionable

HQ is released after ingestion

Prof Saja Hamed

دواء في 8 أسابيع



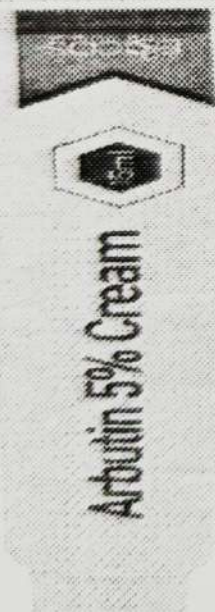
KEY INGREDIENTS

2% ALPHA ARBUTIN
Reduces Melanin formation

1% GRAPE SEED EXTRACT
Heals the skin from sun damage

2% BETA ARBUTIN
Evens out your skin tone

SKIN FRIENDLY
No irritant, no side effects



Hydroquinone

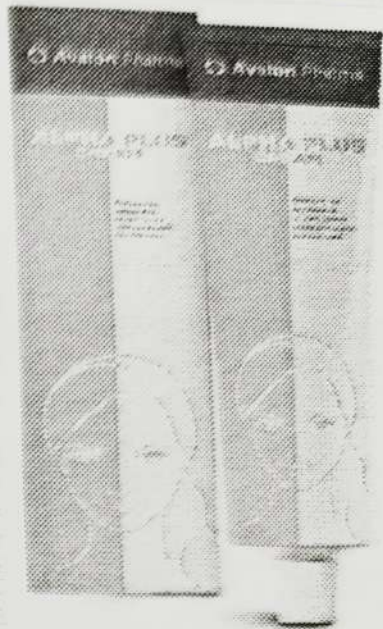
2%
Beta Arbutin

2%
Alpha Arbutin



Deoxy Arbutin

5%
Arbutin

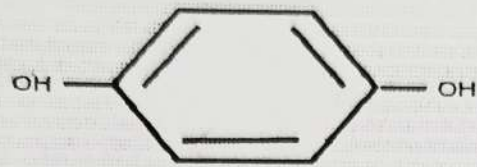


Contains 5% Hydroquinone
with 2% Arbutin

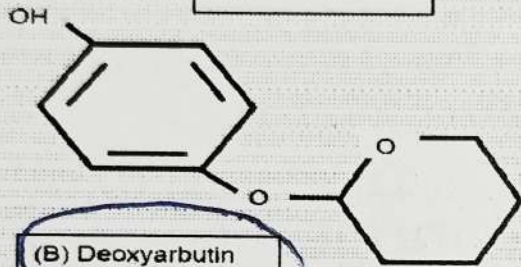
The
Ordina

Alpha
Arbutin 2%
Serum

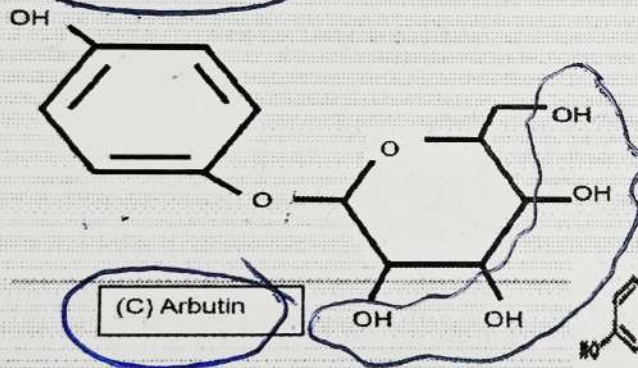
30 ml e



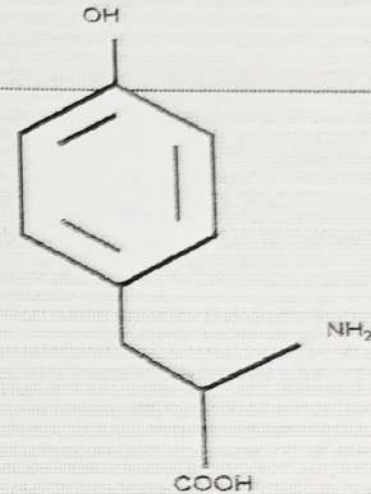
(A) Hydroquinone



(B) Deoxyarbutin



(C) Arbutin



(D) Tyrosine

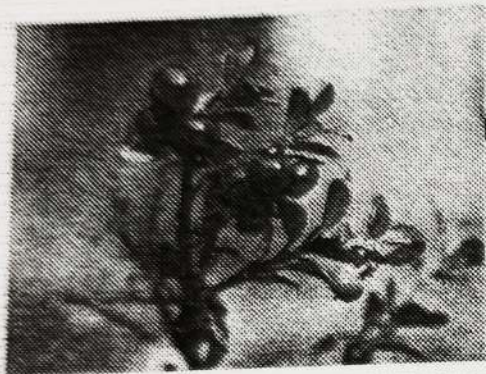


Tyrosinase

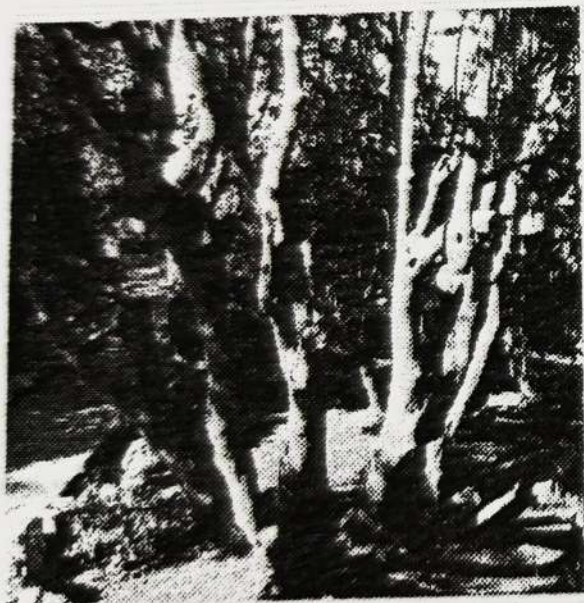


۱. استلوا مکان ۱ Tyrosine و تبدیل
تبدیل ۱ Melanin

الفرق بين α arbutin و β arbutin هو ۱- stereo isomers orientation
يكونوا نفس ۱- structure بس اختلاف الترتيب



B-D-glucopyranoside derivative
of hydroquinone
Hydroquinone- β -D-
glucopyranoside



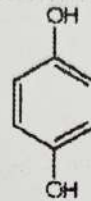
Naturally Derived

✓
Arbutin

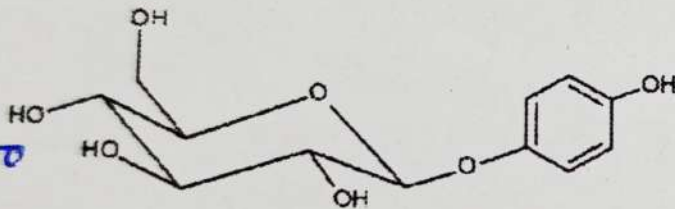
✓
Beta
Arbutin

Arbutus andrachne,

~~is~~ alpha 21 for
synthetic



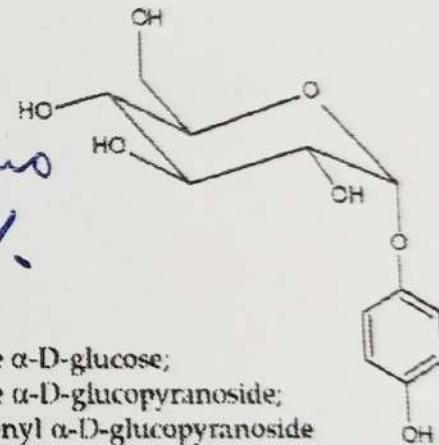
1
Hydroquinone;
1,4-Dihydroxybenzene



5 years
7%

2
Arbutin;
β-Arbutin;
Hydroquinone β-D-glucose;
Hydroquinone β-D-glucopyranoside;
4-Hydroxyphenyl β-D-glucopyranoside

effective
plant-derived
form



5 years
2%

3
α-Arbutin;
Hydroquinone α-D-glucose;
Hydroquinone α-D-glucopyranoside;
4-Hydroxyphenyl α-D-glucopyranoside

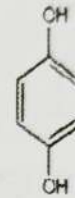
more potent
compared to

synthetic form

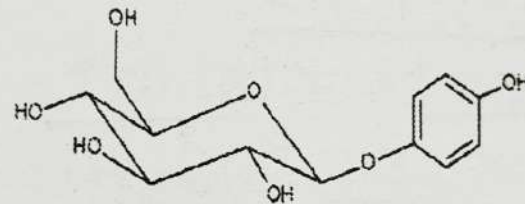
Alpha Arbutin is
not found in
nature

(Synthesized by
chemical &
Enzymatic
Method)

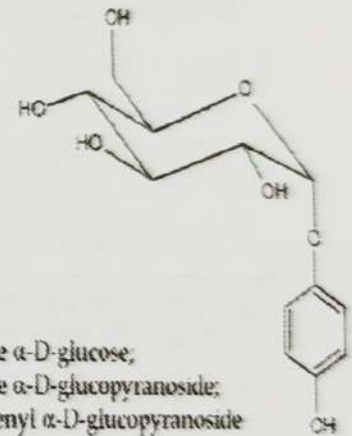
Scientists in
Japan were the
first to synthesise
Alpha Arbutin



1
Hydroquinone;
1,4-Dihydroxybenzene



2
Arbutin;
 β -Arbutin;
Hydroquinone β -D-glucose;
Hydroquinone β -D-glucopyranoside;
4-Hydroxyphenyl β -D-glucopyranoside



3
 α -Arbutin;
Hydroquinone α -D-glucose;
Hydroquinone α -D-glucopyranoside;
4-Hydroxyphenyl α -D-glucopyranoside

<https://www.cosmeticscare.eu/en/deoxyarbutin-ban-and-dihydroxyacetone-regulations/>

Summer is in full swing, and the European Commission doesn't laze around and introduces further changes to the cosmetic law. Thus, the **Commission Regulation (EU) 2021/1099 of 5 July 2021** amending Annexes II and III to the Regulation (EC) No 1223/2009 was published. The changes concern two ingredients: Deoxyarbutin (INCI: Tetrahydropyranyloxy Phenol) and Dihydroxyacetone (INCI: Dihydroxyacetone). Details below.



Deoxyarbutin

Deoxyarbutin (INCI: **Tetrahydropyranyloxy Phenol**) has been used as a skin lightening agent so far, e.g. in face creams. It is a derivative of β -arbutin, obtained by removal of hydroxyl groups from the glucose side-chain of β -arbutin.

This compound has not been covered by the Regulation (EC) No 1223/2009 so far. However, the SCCS Scientific Committee concluded that, due to safety concerns, the use of deoxyarbutin in face creams up to 3% cannot be considered safe (opinion no. **SCCS/1554/15**). This is due to the fact that deoxyarbutin releases Hydroquinone. On the other hand, Hydroquinone is a prohibited substance for use in cosmetics (Annex II of the Regulation 1223/2009, item 1339), with the exception of position 14 in the Annex III (it may be used only in artificial nail products under certain conditions).

التحقيق العلمي من
من ناحية ال
safety
هو قد رتب انه
يقل release
ل
HQ !

All this made Tetrahydropyranyloxy Phenol (deoxyarbutin) included in the **Annex II**, under **entry 1657**. In brief, this substance will be banned for use in cosmetic products from **July 26th, 2021**.

Prof Saja Hamed

Is there a Possible Production of Hydroquinone from Arbutin

في اختبار فعاليت arbutin

هل بعد، ينتج كاله؟ و

فعاليتة تكمن بانه يحرر HQ !!

نتایج بررسی ذاتی بتوضیح قدرت (arbutin) علی العمل بدون ما سیر
release
! HQ

What the published research results showed:

- ☒ Storage Condition
- ☒ PH of the Formula
- ☐ The majority of evidence supports that arbutin has intrinsic properties that inhibit cellular melanogenesis and reduce cellular TYR activity regardless of hydroquinone release

Boo, Y.C. Arbutin as a Skin Depigmenting Agent with Antimelanogenic and Antioxidant Properties. Antioxidants 2021, 10, 1129.
<https://doi.org/10.3390/antiox10071129>

Regular Articles

Analysis of the Effects of Hydroquinone and Arbutin on the Differentiation of Melanocytes

Yu Inoue, Seiji Hasegawa, Takazaki Yamada, Yasushi Date, Himeshi Mizutani, Satoru Nakata, Kayoko Matsunaga, Hirohiko Akamatsu

① إذا كان غرض مع حفظ
stable وبتوضیح متغیله

② PH إذا كانت مناسبة
اله برضو حفظ stable

③ قدره (arbutin) انه يقلل من
النحل (Tyrosinase) بدون وجود
HQ فبالنهایی

بقدر يكون فعال كاله .

لكن فبالنهایی هو قادر على العمل بدون وجود HQ
إذا اهتمت بها في الأساس

EXPERT OPINION

Safety of alpha-arbutin and beta-arbutin in cosmetic products

Final Opinion

PAGE CONTENTS

Details

Description

Files

Details

Publication date

1 February 2023

Author

Scientific Committee on Consumer Safety (SCCS)

Description

SCCS members: U. Bernauer, L. Bodin, G. Chauchry, P.J. Coenraads (Chairperson), M. Dusinska, J. Ezendam, E. Gaffet, C.L. Galli, B. Granum, E. Panteri, V. Rogiers (Rapporteur), Ch. Rousselle, M. Stepiak, T. Vanhaecke, S. Wijnhoven

SCCS external experts: N. Cabaton, A. Koutsodimou, W. Uter, N. von Goetz

Contact: SANTE-SCCS@ec.europa.eu

On request from: European Commission

SCCS Number: SCCS/1642/22

Adopted on: 31 January 2023

Alpha arbutin → Face cream 2%
 → body lotion 0.5%

! Safe
 SCCS 1552/15

The SCCS is of the opinion that alpha-arbutin used in face creams up to a maximum concentration of 2% and in body lotions up to a concentration of 0.5% is safe, also when used together.

The SCCS is of the opinion that beta-arbutin used in face creams up to a maximum concentration of 7% is safe.

→ Beta arbutin → Face cream 7%

الجمع بين الـ alpha
 + beta arbutin
Safe فمن التراكيب المسموحة

Aggregate exposure of alpha-arbutin (2% in face cream and 0.5% in body lotion) with beta-arbutin (7% in face cream) are considered safe.

• Stability of beta-arbutin in formulations:

Beta-arbutin is stable at pH 5-7 for 6 months at 40°C and for 36 months at 25°C. Again, the pH is a crucial factor as in the open literature high instability is shown at pH < 4 with major loss of beta-arbutin.

⇒ stability of beta arbutin
 → pH (5-7)
 → 40°C for 6 month
 → 25°C for 36 month

and unstable in pH < 4

3.3.1.1 Skin irritation

Alpha-arbutin: non-irritant to rabbit skin (OECD 404)

Beta-arbutin: a 10% aqueous solution of beta-arbutin was slightly irritating to the skin.

(SCCS/1552/15 and SCCS/1550/15)

له 7%
 7%.

Tyrosinase inhibitors:

d. Kojic acid

irritant

- Is a fungal metabolite commonly produced by many species of Aspergillus, Acetobacter, and Penicillium
- Widely used as a food additive for
 - ① preventing enzymatic browning and to
 - ② promote reddening of unripe strawberries
- Used in concentrations between 1 and 4% and is often more effective in combination with other ingredients

ينتج من بعض الأنواع الفطرية

* استدامة في الأكسجين

① يمنع الأكسدة التي تحول الأخضر للون البني

② يعزز اللون

الأحمر بالفراولة

لكن كلما زاد التركيز، يزيد

irritation.

الأفضل نضج بتركيز 1٪

Tyrosinase inhibitors:

d. Kojic acid

□ Products that contain kojic acid are used twice a day for one to two months

استعماله مرتين يوميا - مرة كل 12 ساعة

□ Unfortunately, it is associated with contact allergy and is considered to have high sensitizing potential

□ A 1% concentration is usually used

حكيانه انه يهيج و allergy له و لاستعماله
التركيز 1%

Tyrosinase inhibitors:

e. Licorice extract

- ☐ Licorice extract is obtained from the root of *Glycyrrhiza glabra* linneva
- ☐ Its main active ingredient is 10-40% glabridin ← أهم مكون في عرق السوس هو
- ☒ Inhibit tyrosinase activity
- ☒ It also demonstrated anti-inflammatory effects *in vitro*

Glabridin (10-40%)

- Licorice extract is obtained from the root of *Glycyrrhiza glabra linneva*
- Its main active ingredient is of Licorice Extract *Glycyrrhiza glabra linneva* is glabridin
- Inhibit tyrosinase activity and It also demonstrated anti-inflammatory effects *in vitro*

ماہی دہی ہے



Review

Phytochemistry and biological properties of glabridin

Charlotte Simmler [✉], Guido E. Pauli, Shao-Nong Chen

Show more

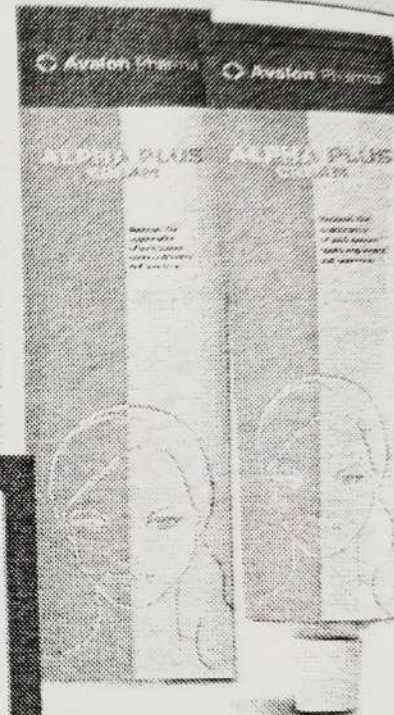
Add to Mendeley Share Cite

<https://doi.org/10.1016/j.fitote.2013.07.003>

Get rights and content

The term “Glabridin-40” is listed in the International Nomenclature of Cosmetic Ingredients (INCI) as *Glycyrrhiza glabra* (root) extract enriched in Glab. Those enriched extracts are widely used in cosmetic formulation as anti-inflammatory, antioxidant and skin whitening agents. Approximately 166 patents are associated with the isolation, synthesis, formulation and applications of Glab. Among them, 82% were Chinese or Japanese patents, and 70% had a cosmetic or dermatologic application. To date, the number of patents and research articles linked to Glab study are almost equal (Fig. 1C).

SKIP
B



SUPPLEMENT FACTS

Serving Size: 1 Capsule
Servings Per Container: 60

Amount Per 1 Capsule (Veg):	%DV
Deglycyrrhizinated Licorice (DGL) 75 mg	**
(<i>Glycyrrhiza glabra</i>) Root Extract	
standardized to contain ≥ 3.5% glabridin,	
≥ 10% total flavonoids	

**Daily Value (DV) not established

Other Ingredients: organic rice bran extract, hydroxypropyl methylcellulose vegetable cellulose capsules, vegetable source stearic acid, silica.

No sugar, salt, yeast, wheat, gluten, corn, soy, dairy products, artificial coloring, artificial flavoring, or artificial preservatives.
Terry Naturally brand products contain natural and other premium ingredients.

~~standardization~~

extract standardization

یعنی حاکمین کن مرکب

شونہ

supplement

for 1 cup ...

استاذة محاضرة في السوم

①

②

REVIEW ARTICLE

Licorice in the Treatment of Acne Vulgaris and Postinflammatory Hyperpigmentation: A Review

Citation 3

 PlumX Metrics

Kosar Raoufinejad , Mehdi Rajabi  , Golnaz Sarafian

است

matory

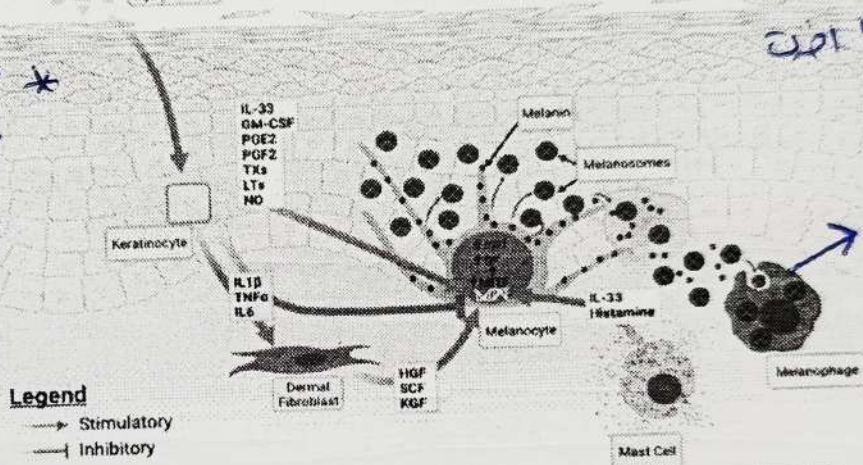
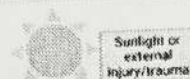
هناك زيادة في صبغة الميلانين

Injury
Trauma

* وقت التعرض للشمس أو

مع تنقذ الخلايا التالية:-

- Keratinocytes
- Fibroblast
- Mast cells
- Macrophages



Legend

- Stimulatory
- Inhibitory

هناك زيادة في صبغة الميلانين

Melanosomes

dermis

في تركيز الميلانين
هناك زيادة في

derma

derma melasma

في إنتاج الميلانين من الخلايا

dermis

مع إنتاج الميلانين من الخلايا

* في إنتاج الميلانين من الخلايا

A Focused review on the pathophysiology of post-inflammatory hyperpigmentation

Jalal Maghfour, Jadesola Olayinka, Iltefat H. Hamzavi, Tasneem F. Mohammad

First published: 20 March 2022

Original Research Article

**The Inhibitory Effect of Glabridin from
Licorice Extracts on Melanogenesis and
Inflammation**

**TOMOHIRO YOKOTA,¹ HIROYUKI NISHIO², YASUO KUBOTA³,
AND MASAKO MIZOGUCHI³**

¹Basic Research Laboratory, Kanebo, LTD, Kanagawa, 250, Japan; ²Cosmetics Laboratory,
Kanebo, LTD, Odawara, Kanagawa, 250, Japan; ³Department of Dermatology, Saint Marianna
University, School of Medicine, Kawasaki, Kanagawa, Japan

SK:Q

Will Glabridin Get into the SC?

اتحققوا فيه الشرطين
لهين بوصول لـ SC

لازم يتحققوا ههون الشرطين
حوا كفا يقد مختبره طبقة SC



①

Small molecules, less than 500 Da



②

lipophilic compounds

The barrier function of skin is principally attributed to the stratum corneum

Bos JD, Meinardi MM. The 500 Dalton rule for the skin penetration of chemical compounds and drugs. Exp Dermatol. 2000 Jun;9(3):165-9.

عنا الـ vit c هو مركب هيدروفيل من ١٧٠٠ دالتون بس ما بيوصل
لبيبه انه lipophilic

Other Agents:

f. Aloesin

هو من Aloesin في Aloe vera

- A natural compound that is isolated from Aloe vera
- Inhibits tyrosinase at non-cytotoxic concentrations

هو من class 1، يمنع Tyrosinase inhibition.

Table 1. Some depigmenting lightening agents and their mushroom tyrosinase inhibition activities from natural sources

Inhibitor	Source	Botanical name	Type of inhibition	IC ₅₀ (μmol)	Reference
Arbutin	Gvae grsi	Arctostaphylos uva-ursi	Competitive	0.04	Yagi et al., 1987
			Uncompetitive		
Aloesin	Aloe vera	Aloe barbadensis	Noncompetitive	0.1	Yagi et al., 1987
Anacardic acid	Anacardium occidentale	Anacardium occidentale	Competitive	0.0001	Kubo et al., 1994
Anisic acid	Anise oil	Pimpinella anisum	Uncompetitive	0.68	Lee, 2002
Agaricine	Agaricus bisporus	Agaricus bisporus	Uncompetitive	0.03	Espin and Jolivet, 1998
Anisaldehyde	Anise oil	Pimpinella anisum	Noncompetitive	0.38	Lee, 2002
Cumic acid	Cumin seed	Cuminum cyminum	Noncompetitive	0.26	Kubo and Kirst-Hori, 1988
Cuminaldehyde	Cumin seed	Cuminum cyminum	Noncompetitive	0.05	Kubo and Kirst-Hori, 1988
p-Coumaric acid	Ginseng Radix	Panax ginseng	Mixed	3.65	Lim et al., 1991
ECG	Green tea	Thea chinensis	Competitive	0.035	No et al., 1999
EGCG	Green tea	Thea chinensis	Competitive	0.034	No et al., 1999
la	Agaricus hortensis	Agaricus hortensis	Competitive	0.03	Madhosingh and Sundberg, 1974
3,4-Dihydroxycinnamic acid	Pulsatilla cernua	Pulsatilla cernua	Noncompetitive	0.97	Lee, 2002
Oxyresveratrol	Mori Cortex	Morus alba	Noncompetitive	0.001	Lee, 2002
Kaempferol	Croci Stigma	Crocus sativus	Competitive	0.23	Kubo and Hori, 1999
Trans-cinnamaldehyde	Cinnamomi Cortex	Cinnamomum cassia	Competitive	0.85	Lee et al., 2000
lb		Agaricus hortensis	Noncompetitive	0.03	Madhosingh and Sundberg, 1974
4-Hydroxy-3-methoxycinnamic acid	Pulsatillae Radix	Pulsatilla cernua	Noncompetitive	0.97	Lee, 2002; Lee, et al., 2000
9-Hydroxy-4-methoxypsoraln	Angelicae dahuricae Radix	Angelica dahurica	Noncompetitive	0.2	Piao et al., 2004
5-hydroxymethyl-2-furfural	Dictyophora indusiata	Dictyophora indusiata	Noncompetitive	0.98	Sharma et al., 2004

Prof Saja Hamed

SK-18

Melanocyte-Cytotoxic Agents

① Azelaic acid:

- A naturally occurring acid موجود طبيعي
- Its depigmenting effect is most apparent in highly active melanocytes with minimal effects in normally pigmented skin
- Generally well tolerated and can be used for extended periods لهذه الاستخدام لفترة ممتدة
- ① Transient erythema and cutaneous irritation ② characterized by scaling, itching ③ which generally resolves after 2-4 weeks of application S.E

بمختفي هاء الأعراف بعد أسبوعين
كأربع أسابيع من الاستعمال

Prof Saja Hamed

ميزته إنه يستعمل على الخلايا النشطة التي
تم تفرز حالياً أو Melanin بزيادة بسبب تعرض
للشمس أو غيرها من على التورمال الموجودة
بالجلد وتقلل من إنتاج الميلانين بشكل طبيعي.

Melanocyte-Cytotoxic Agents

Azelaic acid:

دوائی
Melanocytes

- Its main actions are likely due to its
① antiproliferative and cytotoxic effects ②

(Fitton & Goa: Azelaic acid: a review of its pharmacological properties and therapeutic efficacy in acne and hyperpigmentary disorders. Drugs 41: 780, 1991) ③ ④

- it is an excellent alternative for patients who cannot tolerate hydroquinone ← الناس التي ما يتحملوا الهيدروكينون

drugs

- 10%, 20%, and 35% ١٠٪، ٢٠٪، ٣٥٪ فقط ١٠٪
- Applied twice daily for several months
- Fungal infection of the skin called pityriasis vesicolor

لم يستجبه للحاج مريض تابع من عيوني فطرية
تظهر على شكل بقع بيضاء عاكسة

Prof Saja Hamed

Pityriasis vesicolor

Other Agents:

α -Hydroxy and β - Hydroxy Acids:

- ❑ Causes faster desquamation of the pigmented keratinocytes
- ❑ The removal of superficial layers of epidermis with glycolic acid peels can enhance the penetration of other topical skin lighteners such as hydroquinone

حكيًا إنه يسرع إزالة الطبقة
العلوية للبشرة ويمكن بجزر دخول مواد
لداخل البشرة مثل الـ HQ

Other Agents:

Niacinamide

- ☐ The amide form of vitamin B3
- تقلل* ☒ Inhibit melanosome transfer *to keratinocytes.*
- ☒ Anti-inflammatory
- ☐ Water soluble
- ☐ More scientific evidence are needed to substantiate the overrated claims
- ☒ 1-3%

*له مالتا في كثير مبالغة بالـ claims
اثابة بالنياصينا ميد حوله ماركيتنج*

Niacinamide - mechanisms of action and its topical use in dermatology

Johannes Wohlrab¹, Daniela Krefl

Affiliations + expand

PMID: 24993939 DOI: 10.1159/000359974

Abstract

Niacinamide, an amide of vitamin B3 (niacin), is a hydrophilic endogenous substance. Its effects after epicutaneous application have long been described in the literature. Given a sufficient bioavailability, niacinamide has antipruritic, antimicrobial, vasoactive, photo-protective, sebostatic and lightening effects depending on its concentration. Within a complex metabolic system niacinamide controls the NF- κ B-mediated transcription of signalling molecules by inhibiting the nuclear poly (ADP-ribose) polymerase-1 (PARP-1). Niacinamide is a well-tolerated and safe substance often used in cosmetics. Clinical data for its therapeutic use in various dermatoses can increasingly be found in the literature. Although the existing data are not sufficient for a scientifically founded evaluation, it can be stated that the use of niacinamide in galenic preparations for epicutaneous application offers most interesting prospects.

© 2014 S. Karger AG, Basel.

SKID

Ingredient : NIACINAMIDE

INCI Name	NIACINAMIDE
Description	
CAS #	98-92-0
EC #	202-713-4
Cosmetics Regulation provisions 1	
<u>Functions</u>	• SMOOTHING
SCCS opinions	
Identified INGREDIENTS or substances e.g.	

only

Other Agents:

Soy

- Soymilk and soymilk- derived proteins are able to inhibits PAR-2 activation ^① thus reduce melanosomes transfer ^②
- Soybeans contain the small proteins Bowan-Birk inhibitor (BBI) and soybean trypsin inhibitor (STI)
- The effect is present only with fresh soy milk and not with pasteurized soy milk

لازم يكون فريش لكي يعطي النتيجة
ما يكون صارت بستره

Prof Saja Hamed

PAR-2 عبارة عن مستقبلات
موجودين على سطح
Melanosomes
لها انبطع خارج تفتت
ترتبط الخلية فيقتل
انزيم الميلانين

بروتينات صغيرة موجودة
في بوي الصويا وبسببها
inhibits
PAR-2 لا

Other Agents:

Retinoids

- It is a frequent adjuvant in the treatment of pigmentary disorders
- Retinoic acid inhibit induction of tyrosinase ①
- Also it accelerate epidermal turnover ② causing keratinocytes to be shed more quickly
- Alustra (0.3% retinol and 4% HQ)

لم حكيما قبل انهم ممكن يكونوا مع بعض ويمكن يكون

Prof Saja Hamed

مع steroid

سببها لعدوى
التهابات

يحد طبقات الجلد
بإستمرار فهاد يعني
تخلصنا من
Keratinocyte
سريع

Other Agents:

Vitamin C

فيتامين سي $\rightarrow$ يُعتبر anti oxidant $\rightarrow$ يمنع تأكسده
cofactor له التيروزيناز الذي ينتج الميلانين

□ Magnesium -L- ascorbyl-2-phosphate (VC-PMG)

□ It interferes with pigment production at various oxidative steps of melanin synthesis by interacting with copper ions at the tyrosinase active site

تفاعل مع ايون
copper الموجود بار
tyrosinase
active site وبالتالي يؤثر
على تكوين الميلانين

□ Antioxidant and depigmenting agent and it stimulate collagen synthesis

(2)

lysine
proline
حماض أمينية

(3)

تصنيف derivatives من فيتامين سي كونه $\rightarrow$ أشكاله مواد (antioxidant) أو لها قدرة
penetration to SC

Prof Saja Hamed

مراجعة



Kojic acid:
irritant and
allergic contact
dermatitis



Azelaic acid: Just
for
hyperpigmentary
disorders

active Melanocyte



Ascorbic acid
(Vitamin C):
Well tolerated but
highly unstable

+ low Penetration



AHA (glycolic and
lactic acid):
Increase skin
sensitivity to sun

بہ ماہہ نقرع بچاچ وکاسرہ
 ۴۴ بیکل ماسک کثیرہ میل
 ۴۴ گٹر الہم

Glutathione for skin lightening: a regnant myth or evidence-based verity?

Sidharth Sonthalia¹, Abhijeet K. Jha², Aimilios Lallas³, Geraldine Jain⁴, Deepak Jakhar⁵

رضیفہ ← یکل - chelati مع ۱ ROS وکاسرہ مینہ

¹ SKINNOCENCE: The Skin Clinic & Research Centre, Gurugram, India

² Department of Skin & VD, Patna Medical College, Patna, India

³ First Department of Dermatology, Aristotle University, Thessaloniki, Greece

⁴ Punarnawah Medical & Research Centre, Jaipur, India

⁵ Consultant Dermatologist & Cosmetologist, New Delhi, India

Key words: glutathione, skin lightening, intravenous, GSH, GSSG

Citation: Sonthalia S, Jha AK, Lallas A, Jain G, Jakhar D. Glutathione for skin lightening: a regnant myth or evidence-based verity? *Dermatol Pract Concept*. 2018;8(1):15-21. DOI: <https://doi.org/10.5826/dpc.0801a04>

Received: June 6, 2017; **Accepted:** November 12, 2017; **Published:** January 31, 2018

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Funding: None.

Competing interests: The authors have no conflicts of interest to disclose.

All authors have contributed significantly to this publication.

Corresponding author: Dr. Sidharth Sonthalia, SKINNOCENCE: The Skin Clinic & Research Centre, C-2246, Suhridaya, Sunshant Lok-I, Block C, Gurgaon, 122009, Haryana, India. Email: sidharthsonthalia@gmail.com

Prof Saja Hamed

JFDA

Glutathione

☐ Not allowed IV

☐ No allowed in micro-needling

ممنوع بسبب مشاكل الكلى والكبد
liver + Kidney

General remarks

التعليمات التي يجب اتباعها عند استخدام أي من المنتجات السابقة

□ When using skin depigmenting agents:

- ①- The sun should be avoided as much as possible
- ②- Depigmenting preparations are meant to be applied only to the hyperpigmented skin
- ③- It could take months before any improvement can be seen
- ④- More than one Depigmenting agent can be used for any given hyperpigmented lesion

ما في حين سرعة
يوم وليلة

ممكن باستخدام نوع واحد من المنتجات

General remarks

- ☐ In the past, mercury was used for lightening skin lesions
- ☐ Mercury use is now prohibited because its highly toxic
- ☐ Some skin lightening products was found to contain mercury above the accepted level

زمان كان يتم استخدام الزئبق لتفتيح البشرة لكن هو سام toxic

Prof Saja Hamed

Slip - stop - slap - seek shade - slide on

BE careful

Be sun smart

Or all your efforts
in treating
pigmentation will
be useless
Be Patient too

الحماية من الشمس



Slip on clothing that covers your skin, long sleeves, collared t-shirts



Stop on sunscreen on exposed areas using factor 50+ for children



Slap on a wide-brimmed hat



Seek shade - especially if outdoors between 11 am and 3 pm



Slide on sunglasses to protect your eyes

Be SunSmart



General Remarks

- ❑ Combination with retinoids, sunscreens, and chemical peels will enhance the effectiveness of these products
- ❑ Sometimes a hyperpigmented lesion is a malignant melanoma *← cancer*
- ❑ Malignant melanoma can develop from a melanocytic naevus (mole) or from skin that has been damaged by cumulative sun exposure or from healthy skin

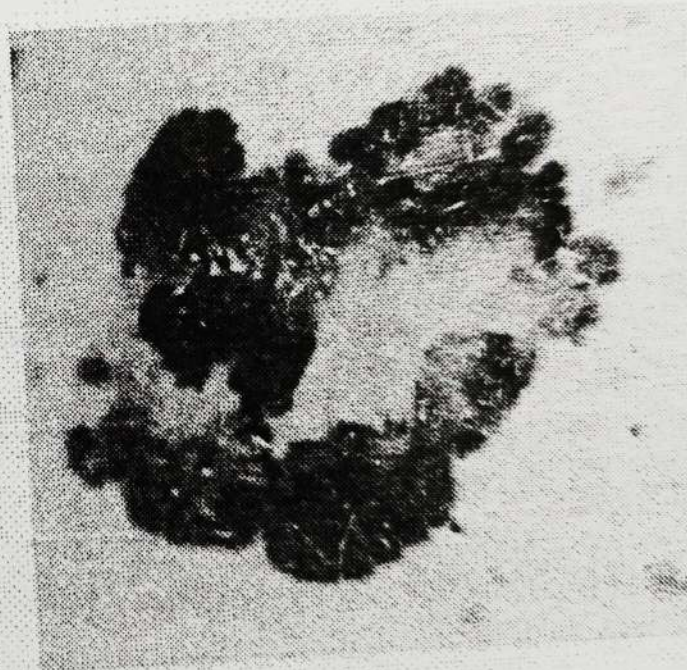
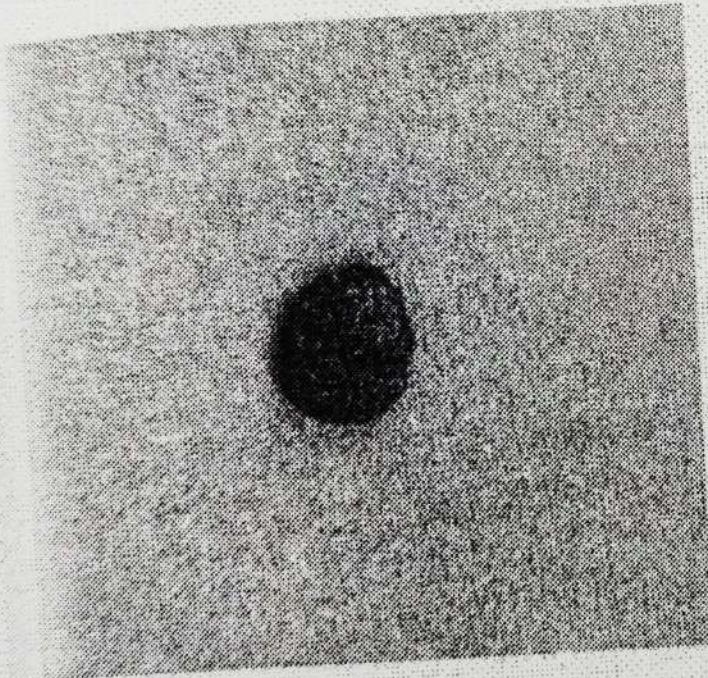
General remarks

50 als 2518

- ☐ **When using skin depigmenting agents:**
 - **The sun should be avoided as much as possible**
 - **Depigmenting preparations are meant to be applied only to the hyperpigmented areas**
 - **Be wise with product selection (your skin care products may irritate the skin and lead to PIH)**
 - **It could take months before any improvement can be seen**
 - **More than one Depigmenting agent can be used for any given hyperpigmented lesion**
 - **Sometimes a hyperpigmented lesion is a malignant melanoma**

Malignant Melanoma

A. Irregular, poorly defined edges

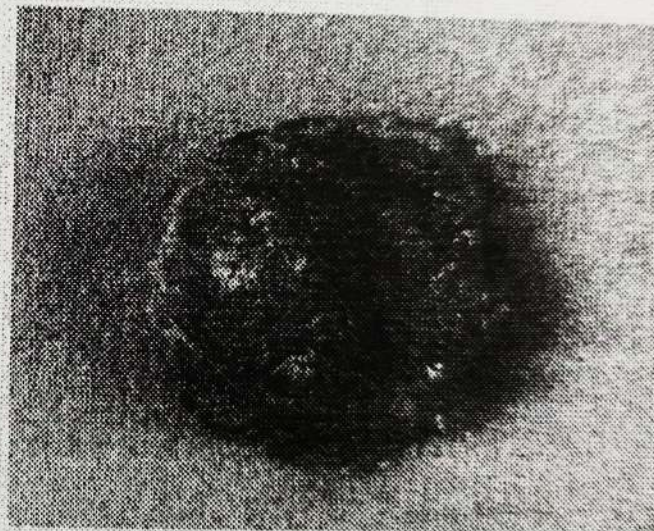
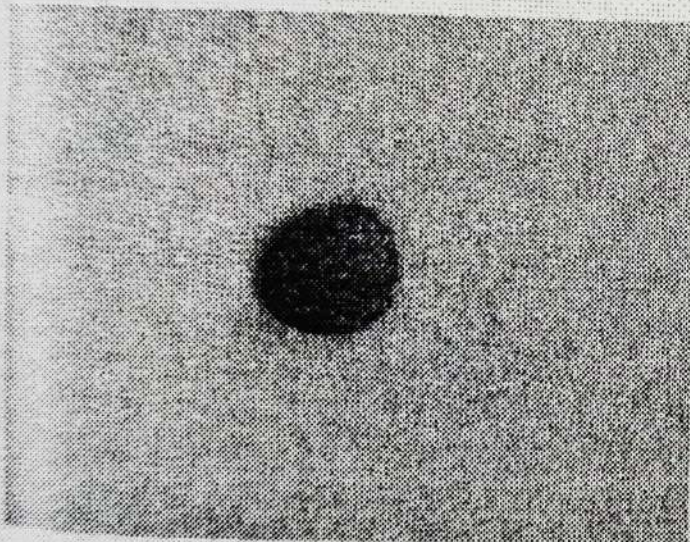


Note the poorly defined border of the lesion shown on the right, which was diagnosed as melanoma. Compare that with the clearly seen sharp border between the skin and the lesion shown on the left, which is of a benign mole.

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B. Non-uniform coloration

3



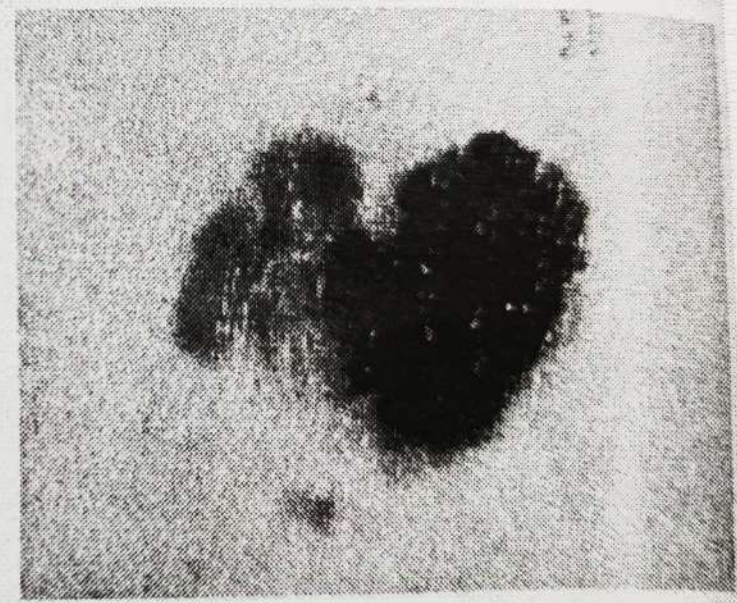
Note the non-uniform colour of the lesion shown on the right, which was diagnosed as melanoma. Compare that with the uniform colouration of the lesion shown on the left, which is a benign mole.

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growth

4

C. Asymmetry of the lesion



Note the asymmetric shape of the melanoma shown on the right, in contrast to the symmetric shape of the benign mole shown on the left.

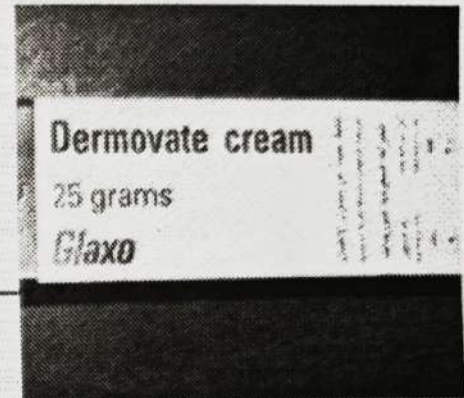
un control growth

Malignant Melanoma

D. Unusually rapid growth

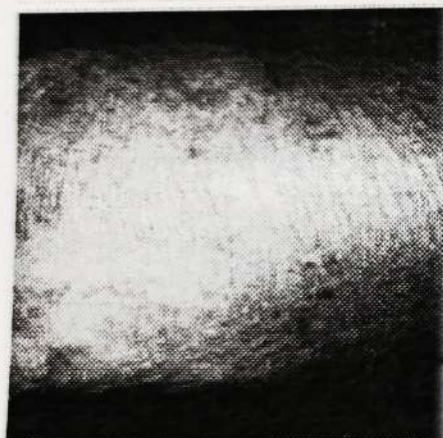
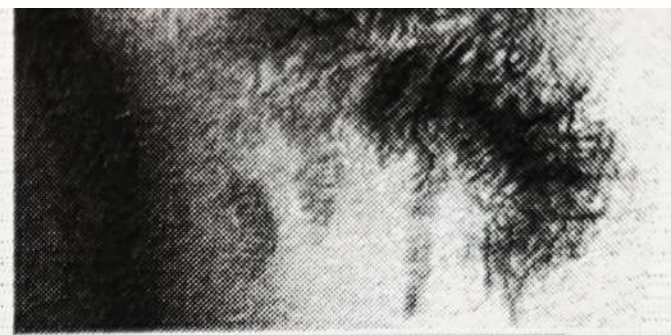
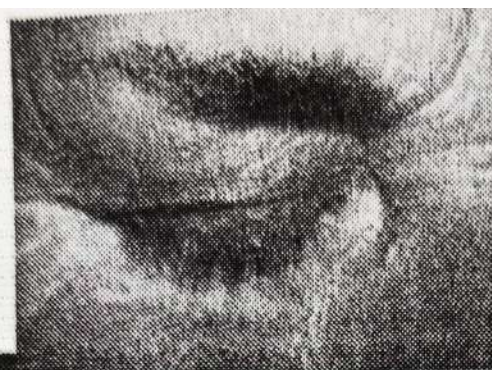
E. Bleeding or discharge from a mole or
the appearance of a sore within it

Uncontrolled ingredients: Topical corticosteroids

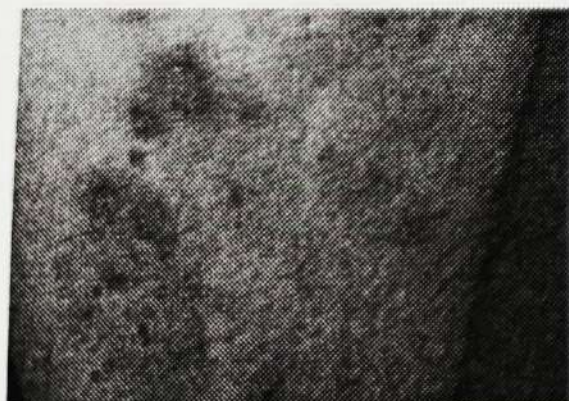


- Their prolonged use (> 3 weeks), especially on thin skin such as facial and flexural sites, is associated with a range of adverse effects.
- striae, atrophy, peri-oral dermatitis, rosacea-like eruption, acne vulgaris, telangiectasia, cutaneous infection, poor wound healing, easy bruising and hypertrichosis

الاستخدام المطول
للكورتيكويد بالذات
عالية في الأماكن
فيها جلد رقيق
تعمل كثير مشاكل
←



*Pharmacists Role:
Topical steroids are just
used as anti-inflammatory
agents in a strict regulated
protocol and not as
lightening agents*



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Mercury Poisoning Linked to Skin Products

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fair and lovely

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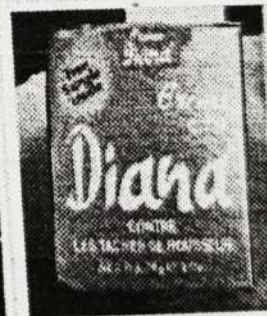
On this page

- Dangers of Mercury
- How to Protect Yourself
- Tracking Skin Products Containing Mercury

Federal health officials are warning consumers not to use skin creams, beauty and antiseptic soaps, or lotions that might contain mercury.

The products are marketed as skin lighteners and anti-aging treatments that remove age spots, freckles, blemishes and wrinkles, says Gary Coody, national health fraud coordinator in the Food and Drug Administration's Office of Regulatory Affairs. Adolescents also may use these products as acne treatments, adds Coody. Products with this toxic metal have been found in at least seven states.

The products are manufactured abroad and sold illegally in the United States—



کیوی علی
Mercury

Cutan Ocul Toxicol. 2005;24(1):11-29.

Does low mercury containing skin-lightening cream (fair & lovely) affect the kidney, liver, and brain of female mice?

Does low mercury conta... 3 Ways to Take a Screenshot

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Histopathological effects of mercury in skin-lightening: [Environ Pathol Toxicol Oncol. 2003](#)

Comparison of mercury levels in various tissues of albino and pigmented mice [\[Biomarkers. 2004\]](#)

Accumulation of mercury in ovaries of mice after the application of skin [\[Skin Trace Elem Res. 2009\]](#)

Review Final report on the safety assessment of capsicum annuum extract [\[J Natl Toxicol. 2007\]](#)

Review Safety and nutritional assessment of GM plants and derived [\[Food Chem Toxicol. 2003\]](#)

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Cutan Ocul Toxicol. 2005;24(1):11-29.

Does low mercury containing skin-lightening cream (fair & lovely) affect the kidney, liver, and brain of female mice?

Al-Saleh I, El-Dawah I, Soliman N, Al-Sarraf B, Khayat E, Al-Amadi M.

Author information

Abstract

Fair & Lovely is an over-the-counter skin-lightening cream sold widely in Saudi markets. Its mercury content is 0.304 ± 0.316 microg/g, in the range of 0.102 to 0.775 microg/g. This study was designed to evaluate its toxic effects on mice. The cream was applied on mice for a period of 1 month at different intervals. Mercury levels were measured in the liver, kidney, and brain tissue samples of a total of 75 adult female CD-1 mice by Atomic Absorption Spectrophotometer coupled to a Vapor Generator Accessory. The mean mercury concentrations in the tissues of the treated mice were 0.193 ± 0.319 microg/g, whereas for the control group, it was 0.041 microg/g ± 0.041 microg/g. While the kidney was found to have the highest mercury content, the brain was found to have the lowest content. Treated mice showed a significant reduction in body weight. Marked histological changes were clearly noted in the kidney and, to a lesser extent, in the brain and liver. These results indicate that although Fair & Lovely mercury content is less than the U.S. Food and Drug Administration (FDA) permissible limits histopathological changes in the brain, kidney, and liver tissues are evidence of its possible toxicity.

PMID: 17040886 [PubMed]

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A screenshot was added

وهذه الدراسة من fair & lovely
معدة شهر واحد في فئران
شبه الزئبق بالكبد والكلى
وهكذا هو له بها مرققة

Environ Health. 1997 Jun 6;51(2):123-30.

Mercury content in skin-lightening creams and potential hazards to the health of Saudi Women.

Mercury content in skin- x 3 Ways to Take a Screen x

ncbi.nlm.nih.gov/pubmed/9176553

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J Toxicol Environ Health. 1997 Jun 6;51(2):123-30.

Mercury content in skin-lightening creams and potential hazards to the health of Saudi Women.

Al-Samir A. Al-Ghazali

Author Information

Abstract

It seems evident from a wealth of scientific research that mercury is toxic. Because of the nature of the Saudi markets, different brands of skin-lightening creams are widely available. In this study, 38 skin-lightening cream samples were collected and analyzed for mercury by inductively coupled plasma spectrometry after an acid digestion procedure. About 45% of the tested skin-lightening cream samples contained mercury at levels well above the FDA's acceptable limit of 1 ppm. These findings are alarming and have wide legal and educational implications for Saudi Arabia in particular and developing countries in general. Further investigation for possible adverse health effects is also needed.

PMID: 9176553 [PubMed - indexed for MEDLINE]

MeSH Terms, Substances

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Cosmetic contact sensitivity in patients with melasma: results of a [Dermatol Res Pract. 2014]
Application of solid phase extraction on multiresidue [Int J Environ Res Public Health. 2013]
Mercury levels in locally manufactured Mexican skin-light [Int J Environ Res Public Health. 2011]

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مذاشقه وولیه الله عا
لریما لالتقیع بکتوی علی زبده

- ❑ In July 2020, HUL renamed its skin care brand Fair & Lovely as Glow & Lovely after fairness products came under social pressure amid a global debate about racial inequality.

Fair & Lovely | ADVANCED MULTI VITAMIN

NEW PACK

HD GLOW

NEW CLARITY | MORE VITAMINS | IMPROVED SKIN TONE

Netizens disappointed after HUL renames 'Fair & Lovely' to 'Glow & Lovely'

Highlandberg
I am a 30-year-old woman living in India. I have been using Fair & Lovely for many years. I love the brand because it has helped me achieve a clear and glowing skin. However, I am disappointed to hear that the brand has been renamed to Glow & Lovely. I feel that this change is a result of social pressure and not a genuine effort to improve the brand. I hope that the brand can continue to provide high-quality products and maintain its reputation for fairness and clarity.

5/5
Fair and Lovely to be known as Glow and Lovely.
Brief given to Copywated: How can you be racist without sounding racist?

'REALLY??'

IMAGE CREDIT: SOCIAL MEDIA

□ 'Poisoning for profit' illegal skin whitening creams – BBC London - YouTube

SKIP

Report

Skin-lightening practice among women living in Jordan: prevalence, determinants, and user's awareness

Saja H. Hamed¹, PhD, Reema Tayyem¹, PhD, Nisreen Nimer¹, MSc, and
Hatim S. Alkharib², PhD

¹Faculty of Allied Health Sciences, the Hashemite University, Zarqa, Jordan,
and ²Faculty of Pharmacy, University of Jordan, Amman, Jordan

Correspondence
Saja H. Hamed, MSc
College of Allied Health Sciences
The Hashemite University
P.O. Box 150459, Zarqa 13115, Jordan
E-mail: hamedsh@hu.edu.jo

Abstract

Background The use and misuse of skin-lightening products among women living in Arab communities have not been documented previously. This study investigates the determinants, the prevalence and users' awareness associated with the use and misuse of skin-lightening products among women living in Jordan.

Method Female customers arriving at selected pharmacy stores were randomly asked to complete a questionnaire.

Results A total of 318 women completed the questionnaire, of which 80.7% reported the use of skin-lightening products. Users included women from different age and economic groups. Main reasons for use were preference of lighter skin tone, the treatment of hyperpigmentary disorders or both. More than a third of the users were not aware of the potential side effects of these products. A significantly larger proportion of skin-lightening product users believed that lighter skin tone plays a role in self-esteem, perception of beauty and youth, marriage and employment opportunities when compared with nonusers.

Conclusion Skin lightening is a common practice among women living in Jordan. It is reinforced by the association of lighter skin tone with a number of perceived benefits including perception of beauty, job and marriage opportunity. Users' awareness regarding the safety of skin-lightening products and instructions for proper use are important considerations when developing interventions to control the misuse of these products.

Introduction

The use of skin-lightening products by women with dark skin tone is a common practice in the sub-Saharan Africa.¹⁻⁴ This practice has been reported to be associated with many side effects⁵ including dermatological,⁶ nephrological^{1,4} as well as neurological complications.⁷⁻¹⁰

The occurrence of such adverse events in populations using these products is partially explained by the fact that a number of the available skin-lightening brands have been found to contain toxic substances such as mercury.⁷

Mercurials were popular as lightening agents until they were recognized as toxic. They have been shown to be nephrotoxic via the absorption of mercury through the skin following repeated use.¹⁰ In addition, dermal exposure to skin-lightening creams containing mercury may contribute to infertility as a consequence to accumulation of mercury in the ovaries of treated men.¹¹

Although banned in many countries, a number of studies showed that a number of marketed lightening products still contain these compounds.¹²⁻¹⁵ About 41% of

commonly used skin-lightening creams in Saudi Arabia were shown to contain mercury above the FDA's acceptable limit of ppm.¹⁴

However, even with the best quality products containing approved components, mainly the ones containing hydroquinone, some of the dermatological side effects can be seen and they are usually associated with the misuse of these products.¹⁶

Hydroquinone, the depigmenting standard, has been banned in cosmetic use in Europe and currently available only by prescription. However, in other countries such as Jordan, hydroquinone use is still allowed in cosmetics at a concentration level not more than 2%. Cases of exogenous ochronosis caused by the abuse of hydroquinone-containing products have been reported.¹⁶ It is characterized by progressive darkening of the area to which the cream containing hydroquinone is applied. Such cutaneous side effect is of great importance as it is difficult to treat and is disfiguring.^{17,18}

Health problems secondary to skin-lightening practice, and its prevalence, are linked on health care authorities and services in countries where this practice is common.

Prof Saja Hamed

بأفريقيا يستمدوا تراكيز خالص من الـ HQ بتوهل د ١٠٠٪
لحمة يفتخروا من لون بشرتهم

Actually, I like being pale.
I don't need to look like
a worn out
leather handbag
to feel good about
myself.



your eCards
someeCards.com

We need to teach our children:
Our varied shades are expressions
of our creator

Dark is Beautiful: Learning to Love
the Skin I'm In

Shed our bias and value humanity
Stop Media and Ads that show this
bias and engrave it into our little
ones



ہمارا یہ ہے کہ ہماری اعلیٰ ترین چیز ہمارے لئے ہے
بشریت عامہ
(پسندیدہ)

Ads in India lauding fair skin 'degrading'

Watchdog issues guidelines to prevent discrimination against darker-skinned people

Published on
Aug 31, 2014



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An ad for the Fair & Lovely cream. The perception in India that the industry in fairness products that generates more than \$5500 million in revenue a year. -- PHOTO: FAIR & LOVELY

By Nirmata Ganapathy, India Correspondent in New Delhi

It is a multimillion-dollar industry that panders to those obsessed with achieving a lighter skin tone, but India's advertising standards authorities have now stepped in to make sure its ads are, well, fair.

Take this commercial: A young woman in a dance show is relegated to a corner, all

Prof Saja Hamed

ur bias!

ofworth.in

TIVE
FUL

Message

SKID



preservative

emollient

Aqua, Glycerin, Caprylic/Capric ³³
Triglyceride, Niacinamide, Sodium ^{thickening agent}
Acrylates Copolymer, Lecithin, Aluminum ^{emulsifier}
Oxide, Hydrogenated Polyisobutene,
Phospholipids, Polyglyceryl-10 Stearate,
Helianthus Annuus (Sunflower) Seed Oil,
Shea Butter, Tartaric Acid, Disodium EDTA,
Sodium Sulfite, Sodium Metabisulfite, ^{anti oxidant}
Butylene Glycol, Saxifraga Sarmentosa
Extract, Carica Papaya (Papaya) Fruit
Extract, Psidium Guajava Fruit Extract,
Phenoxyethanol, Capryloyl Glycine,
Undecylenoyl Glycine, Microcitrus
Australasica Fruit Extract, Xanthan Gum,
Pentaerythrityl Tetra-Di-T-Butyl
Hydroxyhydrocinnamate, Citric Acid,
Nonapeptide-1, Perfume

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emollient
thickener



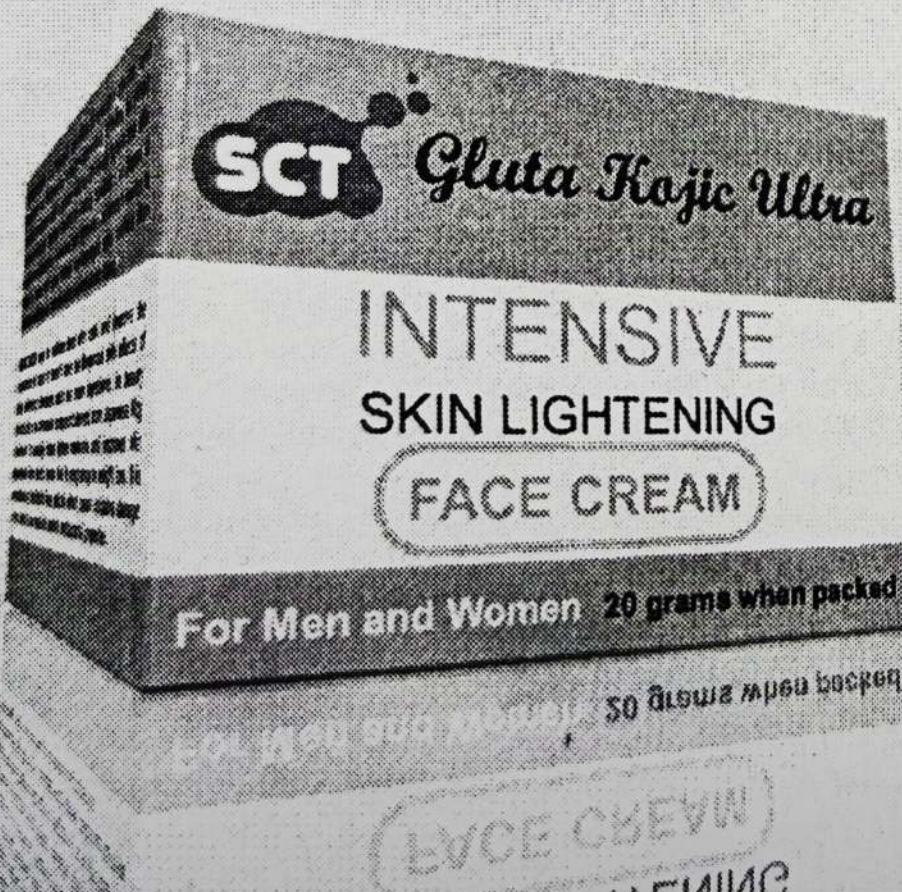
emollient

Distilled Water, Cetyl Stearyl Alcohol,
Glyceryl Monostearate, Glutathione, Kojic
Acid, Fragrance Essential Oil,
Phenoxyethanol

→ emollient
emulsifier

→ anti oxidant
→ كوجيك اسيد

يمكن ان
Allergy



vit Ad

2021547

INGREDIENTS

2021547 8 - INGREDIENTS: AQUA/WATER/EAU, PROPANEDIOL, DIMETHICONE, CETEARYL ETHYLHEXANOATE, NIACINAMIDE, AMMONIUM POLYACRYLOYLDIMETHYL TAURATE, DIPOTASSIUM GLYCYRRHIZATE, HYDROGENATED LECITHIN, POTASSIUM PHOSPHATE, CERAMIDE NP, CERAMIDE AP, CERAMIDE EOP, CARBOMER, CETEARYL ALCOHOL, BEHENTRIMONIUM METHOSULFATE, DIMETHICONOL, LECITHIN, SODIUM CITRATE, RETINOL, SODIUM HYALURONATE, SODIUM LAUROYL LACTYLATE, CHOLESTEROL, PHENOXYETHANOL, ALCOHOL, ISOPROPYL MYRISTATE, CAPRYLYL GLYCOL, CITRIC ACID, TRISODIUM ETHYLENEDIAMINE DISUCCINATE, PENTYLENE GLYCOL, PHYTOSPHINGOSINE, XANTHAN GUM, POLYSORBATE 20, ETHYLHEXYLGLYCERIN (CODE F.I.L. D233672/1)

emollient

emollient

thickener

emollient

vit A derivative

عشان الوجه

emollient

emollient

surfactant

Prof Saja Hamed

27



CREMA ACLARADORA
SKIN LIGHTENING
CREAM
Hidropiroxol Hidroquinona 2%

Aclarar las manchas oscuras
Mejorar la apariencia de la piel
Lightens dark (brownish) spots
Improves skin appearance

Net Wt 50 g (1.7 oz)

Active Ingredients: Hydroquinone
(2%)

Inactive Ingredients: Water, Mineral
Oil, Glyceryl Stearate, Cetyl Alcohol,
Isopropyl Myristate, PEG-100
Stearate, Propylene Glycol, Cetearyl
Alcohol, Polysorbate 60, Sodium
Metabisulfite, Stearic Acid, Tocopheryl
Acetate, Beta-Carotene, Diazolidinyl
Urea, Iodopropynyl Butylcarbamate,
Fragrance

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نسبة الكحول
ضئفة عالية

و معرفته على ان
anti oxidant

و ممكن ما يكون دالهم
تأثير على تفتيح البشرة

INGREDIENTS: ISOHEXADECANE, ALCOHOL
DENAT., ETHYL LINOLEATE, PHENYLETHYL
RESORCINOL, FERULIC ACID, PPG-15-STEARYL
ETHER, SILICA.

LI 2012

Prof Saja Hamed

FeMOva[®]

GENITAL WHITENING CREAM

Usage:

Femora Genital Whitening Cream helps to whiten, moisturize, & removes the dark spots & keeps the natural color of the skin.

Apply it twice daily on the dark spots. For best results, it is recommended to use the Femora feminine wash before applying the cream.

Ingredients:

Aqua, Stearic Acid, Cetyl Alcohol, Stearyl Alcohol, Paraffinum Liquidum, Glycerine, Bisabolo: Allantoin, Titanium Dioxide, Nicotinamide, Retinyl Palmitate, Ascorbic Acid, Methylchloroisothiazolinone, Methylisothiazolinone, EDTA, Lactic Acid.

Manufacturing Place/Üretim Yeri:

CosmoActive™

CosmoActive ILAC A.Ş.
Gökçevler Mah. Adnan Kahveci
Bulvarı 2330 Sk. No:66
Esenyurt-İstanbul/TURKEY
T/F: +90 212 872 57 01
www.cosmoactive.com

الوكيل الحصري في الأردن واسميرق الأوسط

مستوفى لایحه الحسینی

البريد الإلكتروني: info@hdpharma.net

+93 04VAV.A 1.11.19 +93 04V.V.A 1.11.19



100ml e

Turkey

Discover
the potential

Made in Turkey

●●●●●

* titanium dioxide

هو رطل تفتح

* Retinyl Admited

من مَنَقَاتِ عِيَامِنِ (A)

Preservative mix

کائنات کا ماحول، اس کے نام

this is anti-inflammatory



ماده اصلی، Kaolin و Bentonite
کماسه

Ingredients: Water (Aqua), Kaolin, Juglans Regia (Walnut) Shell Extract, Aloe Barbadensis (Aloe Vera) Leaf Extract, Stearic Acid, Glycerin, Isopropyl Myristate, Bentonite, Cetearyl Alcohol, Fragrance, Xanthan Gum, Methylparaben, Curcuma Longa (Turmeric) Rhizome Extract, Imidazolidinyl Urea, Sodium Lauryl Sulphate, Propylparaben, Hedychium Spicatum (Spiked Ginger Lily) Rhizome Extract, Alpinia Galanga (Greater Galangal) Rhizome Extract, Disodium EDTA, Crocus Sativus (Saffron) Flower Extract.

Micro-needlings

- Minimal invasive procedures
- Tiny needles puncture top layer of skin 0,25 mm
- Tiny micro-wound *و. for deep*
- New bed for healing and rejuvenation of skin
- Needs well controlled study for efficacy and safety
- Never do it at home by yourself (Dermarollers)
- and never apply topical products while using it *فتره الامتناع*
- It could worsen melisma by pushing melanosomes down to dermis
- (create wound and open up for complications like infection, scar worsen discoloration).... *ممكن ان يزداد*
- Microneedling Devices | FDA
- Mesotherapy: Procedure, Side Effects, and More
(healthline.com) *Pror Saja Hamed*

Factors that participate in the

Factors that participate in the color under eyes

□ The quality of the skin: thin skin in this area allows the blood vessels to become more visible

منطقة حول العين

يكون فيها الجلد رقيقاً ورائح يمر فيها الدم ويظهر بشوها في بعض لون غامقة

□ depending on the natural anatomy of your face as governed by your genetic the visibility of these vessels may be more noticeable

بجوف تحت العين

Factors that participate in the color under eyes

- Very easy for the fluid to accumulate in the small confined compartment around the eye particularly from chronic rubbing of the eyes, irritation from cosmetics and eye creams
- The natural contour around the eyes and orbital brims as well as hollows that is influenced by underlying facial ligaments, bony structure and subcutaneous fatty tissue

كثرة استخدام كريمات العين أو فرك العين
العين أو حدوث irritation لها مع بعض
تراكب للـ fluid بالمنطقة فـ مع تعريض اللون
الغامق

Factors that participate in the colour under eyes

- natural contour around the eyes and orbital brims as well as hollows lend themselves to shadowing when light is reflected from these contours and concavity
- Overhead lightening can really worsen the noticeability of these shadows whereas direct lightening can mitigate them substantially *الإضاءة من فوق تزيد من الظلال بينما الإضاءة المباشرة تخففها*
- Also the skin around the eye can become hyperpigmented by many factors such as melasma and congenital deeper pigment deposition, too much sun, hormonal changes, OC pills, topical compounds to grow lashes as LATISSE®

← تصبغات حول العين أكثر عادية من باقي الوجه

عوامل كلها بتزيد من ظهور الهالات

Factors that participate in colour under eyes

- ❑ Age changes in structure, collagen and bone structure contribute to noticeability of under eye circles
- ❑ SO there are many factors that contribute to under eye color (anatomy, skin, chronic irritation from too many cosmetics or eye creams, age related changes, hormonal changes, fluid accumulation...etc)

Remarks: Under-Eye Circles:

- ☐ A common complaint by both men and women
- ☐ People with skin type IV and above inherit a genetic tendency to deep pigmentation around the eyes
- ☐ Any inflammation or vasodilation in this area may manifest as darkening
- ☐ Age changes

*genetic
factor*

□ Hence there are no global creams that can eradicate dark discoloration under the eyes

□ Seek Medical consultation

هناك طبيعه العين مع مرور الزمن والعوامل التي بقية
له ليهك ما عني أي كريم عالمي يستعمل وثبتت فعاليتها
بجانب العلاجات.

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Products:

- Elson & NachT (1999) evaluated the use of vitamin K combined with retinol 0.15% for the treatment of periorbital hyperpigmentation and demonstrated that this preparation was effective in improving under-eye circle (Elson M. and NachT S: Treatment of periorbital hyperpigmentation with topical **vitamin K/vitamin A**. Cosmetic Dermatology, 12 (12): 32, 1999)

4- حلا - فيتامين K مع 1 (Retinol)

كحل - يالجوا التصبغات والهاك تحت العين

Products

- ❑ Vitamin K (Phytonadione) is a fat soluble vitamin play a role in blood clotting's has anti-inflammatory properties
- ❑ Topical vitamin k has been shown to improve wound healings since it has antioxidant properties and help in wound contracture
- ❑ Some evidence (not 100%) because these studies are small and use products that have others ingredients (not just vitamin K)

Products

- ❑ The directive 2009/06/EC of 4 February 2009 prohibits the use of phytonadione in all cosmetic products put on the market of the European Union.

حظروا استنادا باوروبا
الحساسية

- ❑ The prohibition of phytonadione (a man-made form of vitamin K) in cosmetic products is due to the fact that this substance may cause cutaneous allergy

□ Vitamin K1 Oxide: Phytonadione Epoxide.

□ Vitamin K1 oxide is intended to replace the use of vitamin K1, which has recently been banned for use in cosmetic products as the allergenic potential

وہاں سے اس کو vitamin K1 oxide کے طور پر
پہلے vitamin K1 کے طور پر استعمال کیا جاتا تھا
Allergy

Products

☐ If your dark circles are hereditary
vit k will not do any things

Products

- Make up and concealers
- Make up that add green pigments can counter balance and redness and mask it
- Optical diffusers to make up and concealers that function to reflect light away and conceal contour irregularities (boron, mica, nylon, polymethylmethacrylate, polyurethane, silica, silicone powder, talc, Teflon, titanium dioxide, zinc oxide)
- However, using cosmetics and concealers can increase risk of irritation as well as some individual become sensitized to one of these ingredients and develop allergic contact dermatitis so it will increase inflammation and swelling and discoloration and exacerbate underlying discoloration

Prof Saja Hamed

آلتم عن
الكونسيلر

مشاكل المواد
السابقة في
الكونسيلر

products

- The most effective and useful eyecream is a sunscreen since discoloration is driven and worsen by chronic sunexposure
- Sunscreens can be irritating and many may endorse burning/ stinging of the eyes and excessive irritation when trying to put sunscreens around the yes → thus look for mineral sunscreens → scatter light and mitigate the appearance of dark discoloration

ضروري استخدام مراعي الشمس حول العين ، لكن
في حال كان عندك حساسية منه فاستخدم
Mineral sunscreen

Products

- Topical creams for dark spot and melasma: **retinoids** (vitamin A derivatives), **arbutin**, **kojic acid**, **soy**, **niacinamide** → may potentially be helpful but also may contribute to worsening irritation also these ingredients are not well studied for discoloration under the eyes so inadequate objective data to say 100% that products containing these ingredients are worth the investment

المواد التي حكيها إنها بتزيد الـ irritation
للوجه ← ممكن تكون لها فائدة بحد ذاتها
المعالج لكن ممكن يجهل irritation

Products

- ☐ Caffiene: can transiently constrict the blood vessels this improve eyelid swelling and resulted fluid accumulation and transiently decreased noticeable blood vessels around the eyes (**transient not cure**) and again added risk of irritation and worsening the dark circle

إذا كان
سبب
الحالة فقط

كله
معه
يغيري
←

لا

Medical interventions

حلون به سله
لعله افلاک

①

□ A variety of Laser based and light based therapy include intense pulse light, radiofrequency, pulse dye laser or vascular laser that target blood vessel around the eye, and laser that target discoloration

② □ Medical tattooing by trained physicians (place pigment in the deeper layer of the skin that can improve the color

□ Fillers (by trained physician): impt appropriate filler selection and appropriate placement of the filler (have risks) also fat transfer.

-
- ☒ No one size fits all approach
 - ☐ Impossible to recommend eye cream
 - ☐ Most eye creams are overpriced moisturizers
 - ☐ Cosmetic companies claim that their creams erase dark circles
 - ☐ These creams may contain depigmenting agents; however, it is unproven whether this condition is caused by excessive melanin production
 - ☐ Sunscreen and increased rest
 - ☐ There are currently no available and effective treatments
 - ☐ Lasers can cause some improvement

إجمالي ما في كريم معين، محل مشكلة، لها علاج وكلها عبارة عن مواد
depigmentation agent و claim، لكن الليزر ممكن يكون حل
فمثال.



- Water, dimethicone, ^{silicon} cetearyl olivate, ^{emulsifier} polyacrylamide, sorbitan olivate, phenoxyethanol, ^{SP preservative} dimethicone/vinyl dimethicone crosspolymer, synthetic beeswax, C13-14 isoparaffin, dimethiconol, carbomer, dimethicone crosspolymer, chlorphenesin, laureth-7, sodium ^{سبته} ^{سجزة} hyaluronate, ethylhexylglycerin, C12-14 pareth-12, sodium hydroxide

Neutrogena Hydro Boost Hydrating
Eye Cream with Hyaluronic Acid,
Dermatologist Recommended Water
Under-Eye Cream

Prof Saja Hamed

له مستحبات كثير سيلكون كانه بيده
Reflect light
glow للبشرة

Hydraluron Moisture Boosting Facial
Serum 30ml

hydraluron

هشون بالبداية
نسبه اعلى
فعاليتها اعظم

Water, Propanediol,
Sodium
Hyaluronate,
Carbomer,
Phenoxyethanol,
Butylene Glycol,
Sodium Hydroxide,
Ahnfeltia Concinna
Extract, Disodium
Edta,
Phenoxyethanol

Prof Saja Hamed

Dark Circle Relief Cream 1 Percent
Vitamin K Oxide derivative

- ☐ Water, Ethyl Alcohol, C12-15
~~Alkyl Benzonate, Caprylic/Capric~~
Triglyceride, Parafinum Liquidum,
Cyclomethicone, Glycerin,
Lecithin, Sodium PCA, MICA,
Phospholipids, Phytonadione *derivative*
Epoxide Hexane, Titanium
Dioxide, Polysorbate 20,
Acrylates/Acrylamide Copolymer,
Phenoxyethanol, Acrylates/C10-
30 Alkyl Crosspolymer,
Triethanolamine, Carbomer,
Disodium EDTA, Propylparaben,
Methylparaben, BHT, BHA.



Herbal Dynamics Beauty

**VITAMIN K & GREEN TEA
BRIGHTENING EYE CREAM**

Aloe / Hyaluronic Acid / Eyebright

0.5 oz / 15 ml

Purified water, Green tea extract*, Aloe barbadensis (Aloe vera) gel*, Centella asiatica (Gotu kola)* extract, Ginkgo biloba leaf extract, Caprylic/capric triglycerides, Prunus amygdalus dulcis (Sweet almond) oil*, Persea gratissima (Avocado) oil*, Sesamum indicum (Sesame) seed oil*, Glyceryl stearate, Vegetable glycerin, Hyaluronic acid, Sodium PCA, Dimethicone Copolyol, Wheat protein amino acid (and) Silk protein hydrolysate, Extracts of Chamomile*, Ginseng*, Eyebright, Evening primrose (and) Borage oil, Retinyl palmitate (Vitamin A), Beta glucan, Phytomenadione (Vitamin K), and Vitis vinifera (Grape) seed extract*.

anti inflammatory + anti oxidant

silicon
anti inflammatory

Prof Saja Hamed