About OMICS Group

OMICS Group is an amalgamation of and worldwide international science conferences and events. Established in the year 2007 with the sole aim of making the information on Sciences and technology 'Open Access', OMICS Group publishes 500 online open access in all aspects of Science, Engineering, Management and Technology journals. OMICS Group has been instrumental in taking the knowledge on Science & technology to the doorsteps of ordinary men and women. Research Scholars, Students, Libraries, Educational Institutions, Research centers and the industry are main stakeholders that benefitted greatly from this knowledge dissemination. OMICS Group also organizes 500 annually across the globe, where knowledge transfer takes place through debates, round table discussions, poster presentations, workshops, symposia and exhibitions.

OMICS International Conferences

OMICS International is a pioneer and leading science event organizer, which publishes around 500 open access journals and conducts over 500 Medical, Clinical, Engineering, Life Sciences, Pharma scientific conferences all over the globe annually with the support of more than 1000 scientific associations and 30,000 editorial board members and 3.5 million followers to its credit.

OMICS Group has organized 500 conferences, workshops and national symposiums across the major cities including San Francisco, Las Vegas, San Antonio, Omaha, Orlando, Raleigh, Santa Clara, Chicago, Philadelphia, Baltimore, United Kingdom, Valencia, Dubai, Beijing, Hyderabad, Bengaluru and Mumbai.

Review of Topical Skin Lightening Agents

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Ancient practices

- Queen Cleopatra -milk
- Chinese -ground pearl
- Ancient Romans lead
- Japanese -Bird dropping
- Indians- Turmeric paste



Fairness Industry









Fair and Lovely?





Fairness creams



What about Tanning?



Tanning Industry



Pigmentary disorders

- Hyperpigmentation
 - Localised:
 - PIH- Acne, Contact dermatitis, Lupus etc
 - Melasma
 - Acanthosis nigricans, Seborrhoeic keratosis
 - Café au lait Macules
 - Diffuse:
 - Disease: Haemochromatosis, Hyperthyroidism, addison's disease
 - Drugs: Tetracyclines, amiodarone, griseofulvin, trimethoprim, quinine, gold, mercury, bismuth
 - Plants/foods: lemons, limes, fig leaves or stems, celery, dill, parsnips, and carrot juice. Phyto photodermatitis
 - Neoplasm: Melanoma

Consultation

- Onset of hyperpigmentation: congenital- café au lait childhoodfreckles pregnancy-melasma
- Duration
- Systemic symptoms: adrenal disease, hyperthyroidism, diabetes
- Drug history- medication, supplements
- Exposure to plants
- Exposure to sunlight

Treatment principles

- Identify and treat systemic disease
- Stop the offending drug/plant
- Treat the underlying inflammatory condition- acne, lupus
- Sun awareness- avoid sun, sunscreen
- Topical skin lightening agents
- Dermabrasion
- Peels
- Lasers

Topical skin Lightening agents

Botanicals:

- Arbutin 1%
- Mulberry extract
- Licorice extract
- Aloesin
- Gentisic acid
- Flavonoids
- Hesperidin
- Ascorbic acid
- Niacinamide
- Poly phenols
- Soy proteins
- Yeast derivatives



Topical Skin Lightening Agents

- Hydroquinone
- Topical retinoids: tretinoin
- Other agents:
 - Azelaic acid
 - Kojic Acid
 - Mequinol
 - Isopropylcatechol
 - N-acetyl-4-cysteaminylphenol
 - N-acetyl glucosamine
 - Piceatannol
- Unregulated
 - Turmeric
 - Lemon juice
 - Camphor
- Topical Corticosteroids
- Mercury
- Ellagic Acid
- Lignin Peroxidase

Melanin synthesis

 Increased melanocyte numbers, increased melanogenesis, spillage of melanin into the dermis and exogenous pigment deposits.



Hydroquinone

- Gold standard for treating Hyperpigmentation
- Used in treatment of PIH, Melasma
- Used in concentration of 2-4%. OTC- 2%
- Inhibits tyrosinase. Reduces conversion of Dopa to melanin
- Used in combination with retinoids, alpha hydroxy acids and antioxidants
- Used in triple combinations creams with tretinoin and fluocinolone
- Decrease in lesion size, pigmentation, disease severity
- Effects seen as early as 4 weeks. Optimal effect after 6-10 weeks

Safety of Hydroquinone

- Oral Hydroquinone a carcinogen- based on rodent studies
- Side effects- ochronosis, Proloned usage of 4-5% HQ with retinoic acid has caused irritant reactions
- FDA has proposed to withdraw the 1982 rule that hydroquinone is GRASE and further additional studies should be conducted regarding safety in humans OTC hydroquinone agents in 2006
- FDA yet to make a final ruling

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Mequinol

 4-Hydroxyanisole , derivative of Hydroquinone

- Less irritative
- Inhibits Tyrosinase
- Used in 2-4% concentration
- Used in combination with tretinoin
- Safe & effective treatment in dark skin types
- Favourable benefit-risk ratio compared to hydroquinone



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Retinoids

- Tretinoin, Adapalene, isotretinoin, tazarotene
- Improvement in photoageing, PIH, melasma
- Tretinoin used in concentration of 0.01-0.1%
- Side effects: Erythema, peeling, PIH
- Irritant dermatitis is a risk in dark skinned individuals and when used in higher concentration
- Reduce dose and titrate to higher doses gradually
- Using cream based formulation reduces irritation
- Using along with a moisturiser
- Maximum effects seen at 8-12 months



Azelaic Acid

- Dicarboxylic acid isolated from Pityrosporum ovale
- 15-20% concentrations as efficient as HQ
- Less of an irritant
- Significantly greater decreases in pigmentary intensity
- Combination with 15-20% glycolic- as efficacious as 4% HQ in treating PIH, melasma
- Side effects are mild and temporary- pruritus, erythema, scaling and irritation



Kojic Acid

- Tyrosinase inhibitor
- Chelation agent produced by Aspergillus oryzae
- Used alone or in combination with glycolic acid or Hydroquinone
- Used in concentration of 1% in cosmetic creams
- 1-4% concentration in skin lightening preparations
- Adverts effects: contact dermatitis
- High sensitising potential
- Banned in Japan- mutagenicity concerns



Arbutin

- Glycosylated hydroquinones derived from leaves of bearberry, pear and cranberry
- Inhibits Tyrosinase activity
- Inhibits melanosome maturation
- Efficacy is concentration dependant
- Paradoxical hyperpigmentation seen with higher doses
- Alpha-Arbutin & Deoxy-Arbutin are synthetic. Show greater tyrosinase inhibition
- Effective in lightening solar lentigenes



Niacinamide

- Derivative of Niacin, Vit B3
- Treatment of acne
- Decereases melenosome transfer
- Decreases melanogenesis
- Concentrations of 2-5%
- melasma, UV induced hyperpigmentation
- alone or with N-acetyl glucosamine
- Safety & efficacy studies needed in PIH



N-Acetyl Glucosamine

- Amino sugar which is a pre cursor to Hyaluronic acid
- Inhibits tyrosinase glycosylation
- Used in 2% concentration alone or in combination with niacinamide
- Well tolerated with mild- moderate irritation
- Safe and efficacious in treatment of hyperpigmentation secondary to sun exposure

Ascorbic Acid

- Naturally occuring antioxidant
- Suppresses melanin synthesis
- Used in 5-10% conc in

combination with other agents like HQ

- Efficacious in photoageing and melasma
- By itself not efficacious



Liquorice Extract

- Plant extract
- Glabridin, licochalcone A, Liquiritin
- Galbridin, licochalcone A
- -Inhibit tyrosinase activity
- Liquiritin causes depigmentation
- by causing melanin dispersion
- Dosage of 1mg/day- melasma
- Used in cosmetic products.
- Eg, Image MD



Protein proteinase inhibitorssoybean trypsin inhibitor, STI & Bowman±Birk protease inhibitor (BBI) Complex mechanism of inhibition of protease-activated receptor 2 (PAR-2) activation leads to depigmentation Trace amounts of free fatty acids & their acyl CoA esters- inhibit trypsin thus adding to the inhibition of the PAR-2 pathway. Used in cosmetic skin moisturisers for skin lightening

<text>

visibly even

foaming

Chemical peels

- Alone or in combination with skin lightening agents
- Reduce dyschromias and PIH
- Superficial -Glycolic -20-70% conc, salicylic, lactic
- Modified Jessner's, Yellow Peel
- Moderate Depth- TCA 15-35%
- Deep peels- Phenol
- Reduce irritation. Use sun care
- Pre-treatment- tretinoin, HQ, alpha hydroxy acid



Laser Therapy

- 1064nm QS (Nd:YAG) laser
- greater margin of safety
- satisfactory results
- Safer in dark skinned people
- Fractional ablative & non ablative post procedure cosmeceutical use
- IPL in pigmented lesions
- Laser induced PIH
- pre treatment with skin lightening agents to reduce the risk of PIH



Emerging Therapies

- 2% Undecylenoyl phenylalanine solar lentigenes
- 5% Methimazole
- Dioic acid
- Aloesin
- 4-(1-phenylethyl)1,3-benzenediol
- Paper mulberry
- Ellagic acid
- Quinolines
- Piperlonguminine
- Luteolin
- Calycosin2

Thank You....

Let us meet again..

We welcome you all to our future conferences of OMICS International 5th International Conference and Expo $\mathbf{O}\mathbf{D}$ **Cosmetology, Trichology & Aesthetic Practices** On April 25-27, 2016 at Dubai, UAE http://cosmetology-trichology.conferenceseries.com/