

## Botanicals and Contact Allergy

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### Botanicals

- plant extracts
- essential oils
- increasingly popular additives
  - cosmetics
  - cosmeceuticals
  - personal care products
  - aromatherapy
  - massage therapy
- medicinal/healing properties
- fragrances

### Botanicals

- push to naturals
- consumers
  - "If natural has to be OK"
  - fewer side effects
- industry has added botanicals everywhere
  - cosmetics
  - shampoos
  - soaps
  - bath gels

### Botanicals - composition

- highly variable
- dependent on plant part
  - leaf
  - root
  - fruit
  - stem
  - flower

### Botanicals - composition

- highly variable
- concentration, antigenicity can differ
  - timing of harvest
  - Where the plant was grown
  - processing of plant

### Botanicals and Adverse Events

- patients increasingly using them
- felt to be Natural and therefore harmless
- patients may neglect to mention usage
- need to ask

## Botanicals and Adverse Events

- ❑ Irritant contact dermatitis
- ❑ Allergic contact dermatitis
- ❑ Photocontact dermatitis
- ❑ Contact urticaria
- ❑ Pigmentation abnormalities
- ❑ Acneiform eruptions

## Botanicals and Phototoxicity

- ❑ Balsam of Peru
- ❑ Carotene
- ❑ Cinnamic aldehyde
- ❑ Essential oils
- ❑ Furocoumarins
- ❑ Oak moss

Seminars in Derm 15(2):78-82,1996.

## Botanicals and Contact Urticaria

- ❑ Balsam of Peru
- ❑ Benzoic acid
- ❑ Camphor
- ❑ Capsicum
- ❑ Caraway oil
- ❑ Cinnamic acid, alcohol, aldehyde
- ❑ Coumarin
- ❑ Henna
- ❑ Ethyl vanilla
- ❑ Eugenol

## Botanicals and Pigmentation

- ❑ Red discoloration by terpenes
  - Lemon, lime, orange, juniper
- ❑ Postinflammatory depigmentation
  - Cinnamic alcohol
- ❑ Postinflammatory hyperpigmentation
  - Benzyl alcohol
  - Benzyl salicylate
  - Cananga oil
  - Cinnamic alcohol
  - Geraniol

Seminars in Derm 15(2):78-82,1996.

## Botanicals and Acneiform Eruptions

- ❑ Cocoa butter
- ❑ Coconut oil
- ❑ Corn oil
- ❑ Linseed oil
- ❑ Olive oil
- ❑ Peanut oil
- ❑ Pine tar
- ❑ Sesame oil

Seminars in Derm 15(2):78-82,1996.

## Botanical Allergy Location

<u>Location</u>	<u>Frequency</u>	
	<u>Simpson</u>	<u>Thomson</u>
Axilla	14.3%	10%
Extremities	50%	21%
Face/Neck	21.4%	41%
Trunk	21.4%	10%
Genitalia	14.3%	
Generalized		7%
Exposed		14%
Hand		14%

## Botanicals and Contact Allergy

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### Tea Tree oil

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- extracted oil from *Melaleuca alternifolia*
  - shrub in Australia
- increasing popularity, increased ACD
- antimicrobial - bacteria, virus, fungi
- anti-inflammatory effects
- most allergenic botanical extract

### Tea Tree Oil- increasing usage

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- cosmetic products
- household products
- massage oils
- aromatherapy products
- mouthwashes
- moisturizing creams

### Tea Tree Oil- adverse effects

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- allergic contact dermatitis
  - occupational contact dermatitis
- irritant contact dermatitis
- systemic contact dermatitis
- erythema multiforme- like reaction

### Tea Tree oil

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- Allergens
  - d-limonene
  - alpha-terpinene
  - terpinen-4-ol
  - Terpinolene
  - 1,8 cineole

### Propolis

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- occupational allergen in beekeepers
- "bee glue"
  - collected by bees from poplar and conifer buds
- used in cosmetics and medicinal products
- not the same as beeswax
  - secreted by bees
- antiseptic, anti-inflammatory, anesthetic
- wound healing, ulcer care

## Propolis

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- composition varies
- 180-300 components
- main allergens
  - LB-1 (3isomeric pentenyl caffeates)
  - 3-methyl-2-butenyl caffeate
  - Phenylethyl caffeate
  - Benzyl salicylate
  - Benzyl cinnamate

## Propolis as Allergen

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- 1.2 – 6.6 % of dermatitis patients allergic
- patch test at 10 % pet
- linear increase in annual frequency of allergy
- increased usage

*Contact Dermatitis* 26: 34-44, 1992.  
*Contact Dermatitis* 45: 269-272, 2001.

## Lichens

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- Plantlike organisms
- 17,000 species
- lichen acid pickers
- woodworkers
- cosmetic products
  - axillary dermatitis- deodorants

## Lichens

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- Lichen acid mix
  - Usnic acid
  - Atranorin
  - Everinic acid
- Usnic acid
  - antimicrobial properties
  - anti-inflammatory properties
  - Analgesic activity
  - Increased usage in personal care products

## Feverfew

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- *Tanacetum parthenium*
- original use- fever, headache, migraines
- allergens-
  - sesquiterpene lactones
  - parthenolides
- contact dermatitis
- contact stomatitis
- uncommon sensitizer

## Aloe

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- used for soothing properties
- thousands of individual chemicals
- exact allergen unknown
- ACD in literature
- contact urticaria

## Gingko biloba

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- anti-inflammatory effects
- no allergic contact dermatitis reported
- fruit pulp contains the allergen
- extracts usually don't use fruit pulp

## Curcumin- tumeric

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- *Curcuma longa*
- used to prevent degradation of products
- anti-inflammatory effects
- antimicrobial effects
- known irritant
- known contactant

## Arnica

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- *Arnica Montana*
- sprains, bruises, wounds
- cosmetic products
- allergic contact dermatitis reported
- often Compositae positive
- can be missed with sesquiterpene lactone

## Chamomile

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- member of Compositae family
- several species of plant
  - *Anthemis nobilis*- Roman Chamomile
  - *Matricaria chamomilla* - German chamomile
- anti-inflammatory effects
- bacteriostatic effects
- sesquiterpene lactones as allergen
- allergic contact dermatitis
- contact urticaria

## Peppermint

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- *Mentha piperita*
- Lamiaceae or mint family
- Flavoring agent
  - toothpaste, gum, mouth wash
- Several adverse events
  - ACD stomatitis
  - burning mouth syndrome
  - oral ulceration
  - chronic cheilitis

## Rosemary

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- *Rosmarinus officinalis*
- evergreen shrub
- antioxidant properties
- anti-cancer activity
- anti-photoaging activity
- allergic contact dermatitis
  - carnosol, carnosic acid, caffeic acid
- uncommon allergen

## Potential Botanical Screening Allergens

<u>Screening Allergen</u>	<u>Positive in Pt with Botanical Allergy</u>
Fragrance Mix	33.3%
Balsam of Peru	30.0%
Compositae	20.0%
Sesquiterpene lactone	6.7%

Dermatitis 15(2): 67-72, 2004

## Patch Testing and Botanicals

- ❑ no good screening allergen
- ❑ large numbers of botanicals
- ❑ test to
  - botanical series- most relevant allergens
  - fragrances
  - patient's products

## Proposed Botanical Screening Tray

Tea tree oil	Lavender
Lichen acid mix	Sandalwood oil
Geranium oil	Cananga oil
Spearmint oil	Rose oil
Dandelion	Ylang-ylang oil
Neroli oil	Compositae

Dermatitis 15(2);67-72,2004.

## Botanical Allergy Education

- ❑ avoid all botanicals
- ❑ avoid all fragrances
- ❑ read labels
- ❑ CARD

## Botanicals

- ❑ increase in usage
- ❑ increase in allergy
- ❑ need to ask about usage
- ❑ difficult to screen for
- ❑ test to larger screen
- ❑ test to personal care products