Ayurveda (Part 2)

Treatment in Ayurvedic System

Herbal products

- Ayurveda uses fixed combinations of herbs.
- Ayurveda approaches herbs through their **energetic qualities**, and **not** just their chemical constituents.

- The properties of herbs are classified according to their

1. Taste (*rasa*).
2. Energetic action (*virya*).
3. Post-digestive effect (*vipaka*).
4. Their affinity to the different body systems.
5. Their effect on the doshas.

Box 3.1 Energetic qualities used in Ayurveda

Taste (*rasa*): sweet, sour, salty, pungent, bitter, astringent.

Effect on the metabolic thermal body (*vīrya*): hot, cold and neutral; this category clarifies whether herbs warm you up or cool you down, if they stimulate or reduce the digestive fire, whether they are expansive or contractile by nature, whether they increase circulation or reduce it.

Post-digestive effect (*vipāka*): how the taste of a natural substance changes after digestion and cooking, hence how it influences the *doṣa*s and physiology in the long-term.

Effect on the digestion, fluid system and tissues in the body (*guṇa*): the herbs have qualities of light, heavy, unctuous, drying, penetrating and soft.

The unique properties of the plant (*prabhāva*): the plant's unique activities above and beyond its particular energetics.

Tropism (*sātmya*): the affinity a plant has for a certain organ, tissue or channel (*āśaya/dhātu/srotas*).

Constitutional (*doṣa*): the effect of the herb on the constitution, i.e. whether it increases, decreases or balances the *doṣas*.

TABLE 3.2 The six tastes

TASTE *(rasa)*	**ELEMENT** *(tattva)*	**QUALITY** *(guṇa)*	**Effect on** *doṣa*
Sweet (*madhura*)	Earth, water	Heavy, wet, cold	K+, P–, V–
Sour (*amla*)	Earth, fire	Light, wet, warm	K+, P+, V–
Salty (*lavaṇa*)	Water, fire	Heavy, wet, warm	K+, P+, V– (K– externally)
Pungent (*kaṭuka*)	Fire, air	Light, dry, warm	K–, P+, V+
Bitter (*tikta*)	Space, air	Light, dry, cold	K–, P–, V+
Astringent (*kaṣāya*)	Air, earth	Heavy, dry, cold	K–, P–, V+

Treatment in Ayurvedic System

Animal products

- The use of animal products is a longstanding practice in Ayurveda.
- The use of such ingredients is regulated by law

Eg. milk, bones, deer flesh, pigeon blood and fats used both are (for consumption and externally).

Minerals:

Eg. sulfur, arsenic, mercury, lead, copper sulfate and gold are also consumed as prescribed.

Examples of Herbs of Ayurveda and Their Uses

Botanical name	English name	Effect on dosha	Medical use
Nigella sativa	Black cumin	Pacifies vata and kapha	Digestive, antiseptic
Ocimum sanctum	Holy basil	Pacifies kapha and vata	Expectorant, febrifuge, immunomodulator
Piper nigrum	Black pepper	Pacifies vata and kapha	Digestive, respiratory disorders

Plants of importance in Ayurveda

- Azadirachta Indica (Neem Tree)
- Curcuma longa (turmeric), Indian saffron
- Carum copticum (Ajowan)
- Terminalia arjuna (Arjuna)
- Ficus religiosa (Peepal Tree, Beepul tree)

Plants of importance in Ayurveda

It is important to identify the chemical constituents as well as PK and PD of those herb in order to figure out any safety issues or drug-herb interactions.

Azadirachta Indica (Neem Tree)

Botanical name: *Azadirachta Indica*

Family: Meliaceae, Part used: Bark, leaves and seeds

Neem is perhaps the most useful traditional medicinal plant in India.

It has been known as "the village pharmacy" because of its healing versatility.

- In Ayurveda, neem leaves are used in curing **neuromuscular pains**.
- Neem leaves are used to treat **chickenpox** and **warts** by directly applying to the skin in a paste form or by bathing in water with neem leaves.
- Twigs of neem are also used in India and Africa as **toothbrushes**. Nowadays toothpastes with neem extracts are also available commercially.
- The tea is traditionally taken internally to **reduce fever caused by malaria**. It is also used to soak feet for treating various **foot fungi**.


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NEW
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Himalaya
HERBALS
Purifying
Neem Face Wash
150 ml e 5.3 fl oz


Himalaya
neem
skin care


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Specially Formulated
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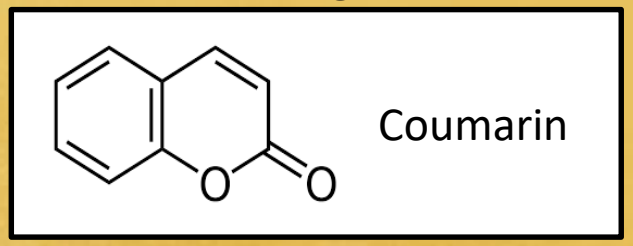
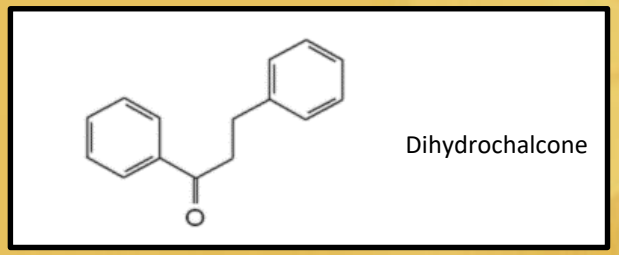
Chemical Constituents

More than 135 compounds have been isolated from different parts of neem and several reviews have also been published on the chemistry and structural diversity of these compounds.

Terpenoids	NonTerpenoids
Diterpenoids	Polyphenolics such as flavonoids and their glycosides
Triterpenoids e.g. Azadirachtin	Dihydrochalcone
	Carbohydrates (polysaccharides)
	Proteins (amino acids)
	Coumarin
	Sulphurous compounds

Neem has a strong odor that is said to combine the odours of peanut and garlic.





Pharmacological Activities

1. Anti-inflammatory activity:

The chloroform extract of stem bark is effective against carrageenin-induced paw oedema in rat and mouse ear inflammation.

2. Anti-diabetic activity:

Aqueous extract of neem leaves **significantly decreases blood sugar level** and **prevents adrenaline** as well as **glucose-induced hyperglycaemia.**

3. Anti-malarial activity:

Neem **seed** and **leaf** extracts are effective against malarial parasites. Components of the alcoholic extracts of leaves and seeds are effective against both chloroquin-resistant and sensitive strains of malarial parasite.

4. Birth control:

Vaginal creams and suppositories made with **neem oil** are quickly becoming the birth control method of choice in India.

The mechanism of action of neem oil appears to be non-hormonal, probably mediated through its **spermicidal effect** and may have less side effects than steroidal contraceptives.

Neem Based Pesticides

- One of the most important uses for neem products is to fight against crop pests and diseases.

- Neem leaves for grain storage

When neem is used in grain storage, pests can be kept away from the grain for a whole year; but if the grain is already infected with pests the protection will not work.

Margosan-O®

Margosan-O® or Neem-Azal S® is an ethanolic neem seed kernel extract concentrate having 3,000 ppm azadirachtin (± 10 percent) and is based on the original process developed by the U.S. Department of Agriculture

- The commercial neem based insecticide, Margosan-O, that is sold in the USA, contains a sunscreen. (why)

When neem products are exposed to light they begin to lose their ability to control pests. For this reason the commercial neem based insecticide, Margosan-O, diat is sold in the USA, contains a sunscreen.

Azadirachtin

- Azadirachtin " a complex tetranortriterpenoid limonoid" is found in neem extracts obtained from all parts of the tree.
- It is the chief ingredient in Neem seed responsible for the Action on the pests.
- Azadirachtin acts in the following way:

- Disturbing or inhibiting the development of the eggs or larvae.

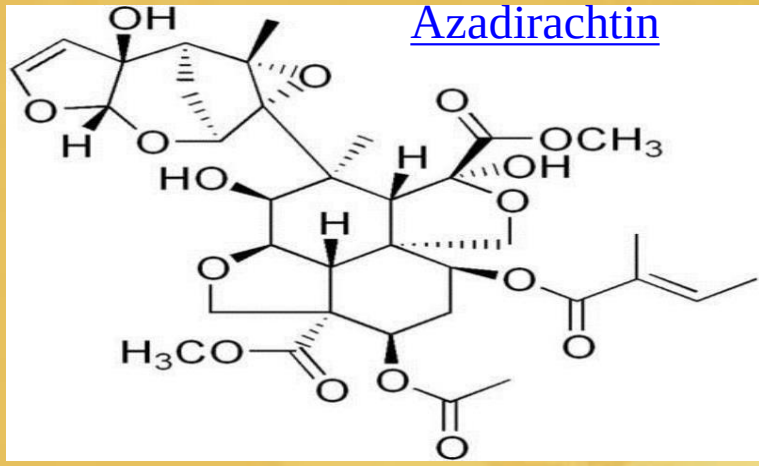
- Blocking the molting of larvae.

http://www.youtube.com/watch?v=0UOiSlWqA3o

- Disturbing mating and sexual communication.

- Deterring females from laying eggs.

- Sterilising adults.



Azadirachtin

Why use neem for pest control?

Pests are often controlled with man made chemicals which have many harmful effects.

•Artificial chemicals kill useful insects which eat crop pests.

•Artificial chemicals can be very bad for the health of people who use them and people who eat food with small amounts of chemicals in the skin, the leaves or on the surface.

•Artificial chemicals can stay in the environment and in the bodies of animals causing problems for many years.

•Artificial products are very simple chemicals and insect pests can very quickly, over a few breeding cycles, become resistant to them and can no longer be controlled.

•Artificial chemicals are often expensive and unaffordable.

Why use neem for pest control?

- Neem has properties which are very effective against many pests and diseases, and the environment.

• Neem contains several active chemicals which work in different ways. As a result of this, pests are unlikely to become resistant to neem.

• Neem is easy to prepare and use, and is environmentally safe and not harmful to man and animals .

• Neem does not usually affect beneficial insects, for example those that eat crop pests.

This is because neem extracts must be eaten to take effect.

Insects that feed on plant tissue are likely to be affected but those that feed on nectar or other insects are unlikely to eat enough neem extract to be affected. Beneficial insects include bees, spiders and ladybirds.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Curcuma longa (Turmeric)

Botanical name: *Curcuma longa*
Family: Zingiberaceae
Part used: Rhizomes
The plant is native to south India and Indonesia.

Curcuma zeodaria (راودج) and *Curcuma mangga* are another varie known by some as "**white" turmeric**.
It is consumed by Southeast Asians and available in some of their markets during late spring and summer.
Its flesh has a lighter color than common turmeric; its flavor, however, is not as subtle, and some roots can be quite pungent.

Ayurvedic uses of Turmeric:

- Turmeric is used for **epilepsy** and **bleeding disorders**, **skin** diseases, to purify the body-mind, and to help the lungs **expel Kapha**.

- Turmeric is used in every part of India during wedding ceremonies and religious ceremonies.

- The rhizomes are boiled for several hours and then dried in hot ovens, after which they are ground into a deep orange-yellow powder commonly used as a spice in curries and other South Asian and Middle Eastern cuisine.

- In Ayurveda, turmeric paste is said to improve the skin and is touted as an anti-aging agent. Staining oneself with turmeric is believed to improve the skin tone.

- Turmeric paste is traditionally used by Indian women to keep them free of superfluous hair.

Other traditional medical uses of Turmeric:

Anemia

Everyday take a dose of 1 tsp of turmeric juice mixed with honey.

Asthma

Boil 1 cup of milk with 1 tsp of turmeric powder. Drink warm.

Eye Burns

Mix 1 tbsp of crushed, raw turmeric in 1/3 cup of water. Boil and sieve. 2–3 drops of this mixture may be used in each eye up to 3 times per day.

Complexion

Apply a paste of turmeric on the skin before bed, and wash off after a few minutes. In the morning, remove any remaining yellow tinge with a paste of chickpea flour (besan) and oil.

Dental problems

Mix 1 tsp of turmeric with ½ tsp of salt. Add mustard oil to make a paste. Rub the teeth and gums with this paste twice daily.

Diabetes

½–1 tsp of turmeric should be taken 3 times a day

Diarrhea

Take ½ tsp of turmeric powder or juice in water, 3 times per day.

Pain

Mix 1 tsp of turmeric and 2 tsp of ginger with water to make a paste. Spread over a cloth, place on the affected area and bandage.

Add 1 tsp of turmeric to 1 cup of warm milk and drink before bed.

Chemical Constituents

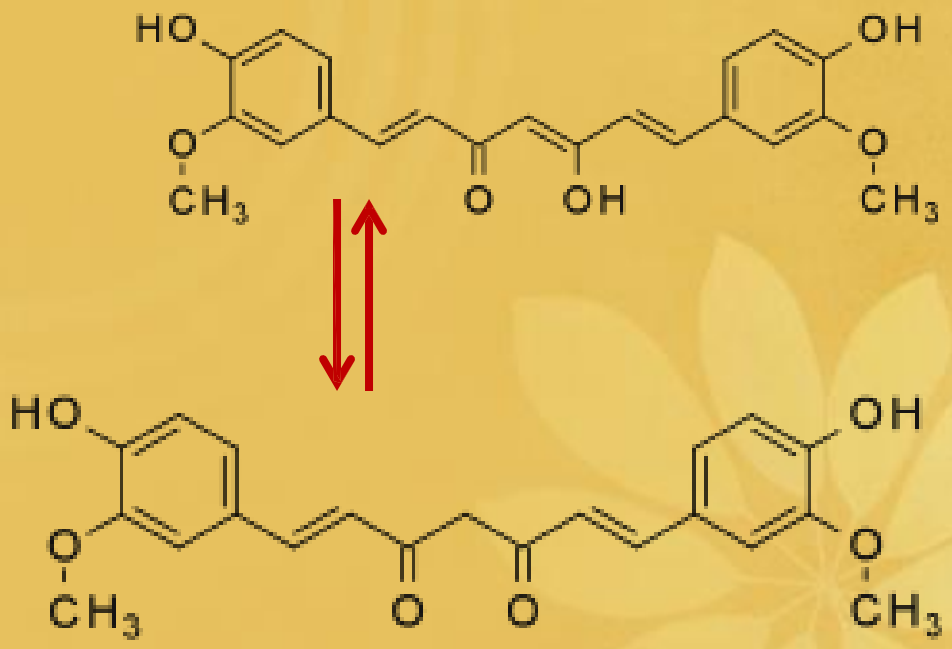
It contains up to 5% **essential oils**, in addition to **curcuminoids** (curcumin, demethoxycurcumin and bisdemethoxy-curcumin)

Curcumin, a polyphenol.

curcumin has a slightly hot peppery flavor and a mustardy smell.

Curcumin: can exist in two tautomeric forms, keto and enol. The keto form is preferred in solid phase and the enol form in solution.

Curcumin is a pH indicator. In acidic solutions (pH <7.4) it turns yellow, whereas in basic (pH > 8.6) solutions it turns bright red.



Reported Biological Activities

- The U.S. NIH currently has registered 61 clinical trials completed or underway to study use of dietary curcumin for a variety of clinical disorders (dated June 2011).

- Curcumin have a wide spectrum of biological actions such as:

  - Anti-inflammatory
  - Anti-oxidant
  - Anti-cancer
  - Anti-diabetic
  - Anti-allergic
  - Anti-viral
  - Anti-protozoal
  - Anti-fungal and anti- bacterial activity activities.

Reported Biological Activities

1. Induction of melanoma cells apoptosis.
2. It may prevent metastases from occurring in many different forms of cancer.

3. Reduction of the risk of childhood leukemia.

4. It is a natural liver detoxifier.

5. It may prevent and slow the progression of Alzheimer's disease by removing amyloyd plaque buildup in the brain.

6. It is a potent natural anti-inflammatory that works as well as many anti-inflammatory drugs but without the side effects.

7. It has shown promise in slowing the progression of multiple sclerosis in mice.

8. It is a natural painkiller and cox-2 inhibitor.

Vitamin D, curcumin may help clear amyloid plaques found in Alzheimer's

Early research findings may lead to new treatments for the disease

By Rachel Champeau July 15, 2009

UCLA scientists and colleagues from UC Riverside and the Human BioMolecular Research Institute have found that a form of vitamin D, together with a chemical found in turmeric spice called curcumin, may help stimulate the immune system to clear the brain of amyloid beta, which forms the plaques considered the hallmark of Alzheimer's disease.

The early research findings, which appear in the July issue of the Journal of Alzheimer's Disease, may lead to new approaches in preventing and treating Alzheimer's by utilizing the property of vitamin D3 — a form of vitamin D — both alone and together with natural or synthetic curcumin to boost the immune system in protecting the brain against amyloid beta.

"We hope that vitamin D3 and curcumin, both naturally occurring nutrients, may offer new preventive and treatment possibilities for Alzheimer's disease," said Dr. Milan Fiala, study author and a researcher at the David Geffen School of Medicine at UCLA and the Veterans Affairs Greater Los Angeles Healthcare System.

Egypt. J. Histol. Vol. 33, No. 3, Sep., 2010: 583 - 593 *(ISSN: 1110 - 0559)*

Original Article

Postulated Protective Role of Curcumin on Indomethacin-induced Acute Gastric Mucosal Damage in Adult Albino Rats (Histological and Immunohistochemical Study)

Abeer AK. Mohamed

Histology Department, Faculty of Medicine, Suez Canal University.

ABSTRACT

Introduction: Non-Steroidal Anti-inflammatory Drugs (NSAIDs) are commonly used drugs in inflammation treatment. NSAIDs are associated with several side effects especially on the stomach. Considering these limitations of NSAIDs side effect, alternate natural nontoxic antioxidant with potent antiulcer activity such as curcumin was needed.

Aim of the Work: This study was conducted to investigate if there is a protective role of curcumin on indomethacin (IND) induced acute gastric mucosal damage in adult albino rats.

Materials and Methods: 24 adult male albino rats each weighing 150-200 grams were used in this study. Animals were randomized into 4 groups (each of 6 animals) and all received the treatment via orogastric tube. Group I (Control Group): included rats that received a single dose of 0.9% saline (10 mg/kg BW). Group II [Curcumin, (cur) Group]: Animals received a single dose of curcumin alone (20 mg/kg BW) 2 hours prior to the end of the experiment. Group III (IND Group): animals received a single dose of IND (48 mg/kg BW). Group IV (Cur/IND Group): animals received curcumin 2 hours before administration of IND in the same previous doses. Four hours after the end of the experiment, biopsies were taken, fixed, processed for histological examination (H&E), (PAS) stain (histochemical reaction) and immunohistochemical detection of COX-2 expression. Moreover the degree of damage in the gastric mucosa and optical density of PAS positive reaction were measured in each studied groups for statistical analysis.

Results: Gastric mucosa of animals received IND only, showed many superficial eroded areas associated with degenerative changes in gastric glands cells, mononuclear cellular infiltration and dilated blood vessels. Marked decrease in PAS positive mucus and marked COX-2 positive reaction in the base of gastric glands cells were also seen.

Each 500mg Capsule Contains:
Turmeric complex
(95% curcuminoids)
Turmeric powder

It is made from curcumin and turmeric raw material.

It contains a 95% concentrated extract of the antioxidants found in the turmeric root; curcuminoids.

Ayurvedic Preparation for Treatment of Acne

- Neem and turmeric have synergestic antibacterial properties and are effective together in acne cure.
- It is effective in treating acne rashes and acne bacterial infection.
- Neem oil applied over the infected area is beneficial in curing acne.
- Turmeric powder mixed with either water or aloe vera gel can be applied over acne rashes.