

It does not need to be something against cancer, hair-loss or arthritis – Herbal preparations with good anti-inflammatory effects can support or even enable healing in many indications – In a long term it pays off to research – A little Example:

- **Bidens alba / pilosa** • (*Asteraceae / daisy (composite) family*) • Shepherd's needle, Beggar's ticks, Spanish needle (*Engl.*) •



Genus: • **Bidens (Zweizahn):** • About 250 species worldwide, mostly trop. Americas, Caribbean, and Africa.
Habit: • Annual – perennial, herbaceous, 10-120 cm (4 in- 4 ft.) high, erect.
Stems: • Erect, mostly pubescent.
Leaves: • Three-toothed, acute, serrated, often paired, some hairy.
Flowers: • Diameter 5 –15 mm (max. half inch), yellow, tubular flowers, tubular, white petals, green, spatulate,

Involucre. Flowering April – Sept.

Fruits: • Elongated achenes (one-seeded, small, partially able to fly, small, partially able-to-fly indehiscent fruit) with little barbs.

Known constituents / Properties: • **Antiinflammatory , antimicrobial:** • e.g. Centaurein, Centaureidin, Polyacetylene, Phenylheptatriyn (PHT), Polylyne, 1,2-Dihydroxytrideca-3,5,7,9,11-Pentayn, Triterpene, Flavonoide, Aurone, Chalkone, Luteolin, 1-Phenyl-1,3-diyn-5-en-7-ol-acetat, Caffeate, Ethyl-Caffeate.

- **Bursera simaruba (L.) Sarg.** • (*Burseraceae / incense tree family*) • Gumbolimbo, Gum Elemi, Tourist tree (*Engl.*) •



Genus: • About 100 species like. **Bursera simaruba** / macro-/ microphylla / glabrifolia / bipinnata / trifoliata.
Habit: • Trop., resinous, deciduous tree, 6 - 15 m (18 – 50 feet) high.
Trunk: • Reddish, exfoliating, rind up to smaller branches. Diameter to 90 cm (near 3 feet).
Leaves: • Pinnate, 10 – 20 cm (4 – 8 in) long with 3 – 10 oval, glabrous leaflets.

Flowers: • Bunchy inflorescence in winter with inconspicuous blossoms with 3 – 5 greenish petals.

Fruits: • Reddish drupes, usually during spring.

Known constituents / Properties: • **Antiinflammatory , antimicrobial:** • e.g. 11 bark-constituents incl. Lignan, Yatein, β -peltatin-O- β -D-Glucopyranoside, Hinokinin, Phenolic compounds, Bursedermin, Terpenoids, resign, Vit E, Methyl-beta-peltatin (perhaps), etc.

- **Aloe vera / barbadensis** • (*Xanthorrhoeaceae*, Subfamily: *Asphodeloideae = asphodels*) • Aloe, Shoot of paradise (*Engl.*) •



Genus: • Round 500 species in various sizes like **Aloe vera / barbadensis** / capensis / ferox.
Habit: • Stemless, shrubby to tree-like, succulent.
Stems: • In **A. vera** branchless, many leaves, sprouting.
Leaves: • About 10 – 20 lanceolate, succulent leaves, filled with gel. The sap becomes yellow when drying. Dented margins (sharp-pointed). Green-gray color, glabrous. Thickness varies with water content. About 5 – 7 cm (2 – 3 inches) wide to 50 cm (20 in) long.

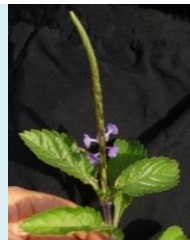
Flowers: • Inflorescence single to a bit branched, 60 – 90 cm (24 – 36 in) long, erect. Flowers bunched and arranged on a 30 - 40 cm (12 - 16 in) length, yellow, short petaled, ca. 3 cm

(ca. 1 in) long, diameter to 7 mm (1/3 in). Stamina and pistils (styles) slightly stick out.

Fruits: • Capsules with edged, flat, dark winged seeds.

Phytochemicals / Properties: • Laxative Anthranoid, Aloin from Anthracene-derivate and others. Antiinflammatory and skin-friendly Gel compounds: • D-Glucose, D-Mannose (Polysaccharide, slimy), monosaccharides, glucose, mannose, galactose, xylose), water soluble vitamins, amino acids, amylase, alkaline phosphatase, lipase, salicylic acid, glycoproteins. Preparations without the Aloin underneath the leaf rind.

- **Stachytarpheta jamaicensis** • (*Verbenaceae / vervain family*) • Blue porterweed, Blueflower, Snakeweed (*Engl.*) •



Genus: • In about 35 Geni round 65 species, e.g. **Stachytarpheta jamaicensis** / indica / angustifolia / cayennensis.

Habit: • Annual – perennial, herbaceous, 10 - 120 cm (4 in - 4 ft.) high, erect.

Stems: • Creeping – erect, angled, and slightly pubescent.

Leaves: • Opposite, oval, serrated, to 7 cm (near 2 in) long, slightly pubescent.

Flowers: • To 5 mm in diameter, usually blue with 5 tubular adnate petals along a 10 – 50 cm

(4 – 20 in) long spike. 4 stamina, mostly flowering with some blossoms.

Fruits: • Minute capsules, each with over 200 seeds.

Known constituents / Properties: • **Antiinflammatory , antimicrobial:** • E.g. Verbascoside, Flavonoide, Glykoside, Phenylethanoid- and - Glykoside, Anthrachinone, Iridoide, Ipolamiide, Acetoside, Fulvoipolamiide, Sesquiterpenlactone, Pro-azulene.

- **Stemodia maritima** • (*Plantaginaceae / plantain family*) • Pond bush, Gumma bush, Granny-bush (*Engl.*) •



Genus: • Round. 40 **Stemodia**-species.
Habit: • Herbaceous to shrubby.

Stems: • Herbaceous, lower part perhaps woody, covered with leaves.

Leaves: • Minute, triangular, slightly pubescent, sticky leaves.

Flowers: • Single in the leaf-axils, bluish, tiny.

Fruits: • Minute capsules.

Known constituents / Properties: • **Antiinflammatory , antimicrobial:** • e.g. Diterpenes, Stemodin, Betulinic acid, D-Mannitol, and more (option- al, as slightly cytotoxic)

Material and Methods – – Examinations in independent Laboratories:

• **Toxicity/Health safety** of the named plants (Aloe is well known) in vitro, in HaCaT-Cells by MTT-assay.

• **Antimicrobial** effect against problematic germs such as (Gram-) MRSA, Staphylococcus aureus and Staph. epidermidis and (Gram+) Pseudomonas aeruginosa and Acetobacter baumannii.

• Testing against test-antibiotics: Vancomycin and Streptomycin.

• **Antiinflammatory** (5-LOX-inhibition) by Spectrophotometry, MIC, MBC by micro-bouillon-dilution method).

• Testing against Test-substances NDGA, Doxorubicin.

• NF-KappaB (Bursera) with slight inhibition, here further investigations of the other plants are recommended..

• (*Identification of the lead substances in the described plants is not done yet*).

Conclusion:

→ **Bidens alba**, **Stachytarpheta jamaicensis** and **Bursera simaruba** are described as healing plants within the traditional medicine of the Bahamas. Especially the ethanolic extracts show promising anti-inflammatory effects (5-LOX-inhibition) and anti-microbial activity (e.g. certain multi resistant microbes) as one can see from the trials explained in the poster.

→ The presented results document by state-of-the-art methods the health safety of the corresponding extracts.

→ Unexpected additive effects in the anti-inflammatory activity could be shown and additional anti-microbial properties in all three plants were identified. Especially in combination, the plant extracts provide a great potential for the development of a dermatological phytopharmaceutical.

→ **Stemodia**, ethanolic, is seen as an option within the combination due to slight cytotoxicity in keratinocytes (H-CAT). In TM (traditional medicine) as tea (aqueous solution) or as decoction no unwanted effects are known. (**Stemodia** + **Bidens** against Cystitis as tea. **Stemodia**-powder directly on the skin to enhance wound healing).

The results show that it is worth the efforts in general to research traditional plants world-wide, as often the experience from practice during centuries could be scientifically proven by standardized experiments.



Historical:

• Since a visit with friends in the Bahamas I was impressed by the knowledge of Midwives (medicine women and midwives) about local healing plants and regretted, that their profession became prohibited during the 60ies to introduce "school medicine" exclusively.

• With many interviews during further visits and documentation I collected information and found some uses in already approved prescriptions such as papaya, aloe etc.

• Since 1997 I practice medicine, after working as holistic practitioner before.

• Since 2000 I try to convince schools, government, COB (College of the Bahamas) of the importance, documentation and further investigation and prejudice-free application of plant medicine („bush-medicine“) in cooperation with school medicine. In the meantime the interest for this is reawakening, and safe plants are partially reinvented into school teaching.

• From further investigations (literature, internet, cross-interviews etc.) I set up a list of round 240 plants. 2010, I published the first Book about this subject and donated books and posters to a museum and some schools and did some workshops.

• 2012 I contracted a technical pharmacologist and a patent agent to support my research about some safe "non-Cites"-Plants.

• In observational studies (Teas, decoctions, poultices, tinctures) I could nearly always see pleasing good effects against lymphoid edema, after insect bites, inflammation of skin and bladder, itching, unspecific eczema, "swimmer's ear" (intact eardrum), superficial gum-inflammation, etc.

• In some Caribbean countries also used against diseases within liver and gastrointestinal tract.

The positive results encourage me to inform Bahamians and to look for license partners or purchasers and to inform also in the Bahamas.

• **Future vision:** Besides further books with more knowledge (even on COB-list): More trials and research to investigate these plants. Extension into other countries, more support for these plant medicines in their original countries, and international cooperation. To establish products (cosmetics – safe uses – Teas, supplements, pharmaceuticals) with safe and simple forms of application is a great intention..

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