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Plants used against diabetes mellitus – global scenario

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Abstract: A review has been reported for a decade (1993 to 2002) on the use of botanicals/herbs as an alternate source of medicine to control diabetes. It was noticed that wide diversity of herbs were used in different countries. Most of the herbs were validated using animal experiments. The review comprises of 71 genera, 85 species from 43 families. About 114 herbs or more have been reported from 33 countries. Twelve herbs were reported from nine countries representing Family Fabaceae. From South America 9; North America 10; Europe 14; Africa 11 and Asia 70 herbs have been reported. Among Asian continent India and Japan recorded use of 26 and 20 herbs respectively against diabetes. Amongst many herbs the seeds of Fenugreek was found to be the largest used in many countries.

Keywords: Diabetes mellitus, botanicals

**Effect of major nutrients on biomass production and stevioside content
of *Stevia rebaudiana* -
a pot culture study**

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Abstract: A pot culture trial (upto 60 days) was conducted in *Stevia rebaudiana* to determine the effects of N, P and K on the plant biomass production (sampled at 15,30,45 and 60th day) and stevioside (active principle) either individually (N,P,K) or in combination with two (NP,NK,PK) or three nutrients (NPK). Results suggested that there was significant increase in biomass production from 0 days to 60th day. Significant differences were not observed across treatments for biomass production but stevioside production increased significantly with application of p and k fertilizers.

Key words: *Stevia rebaudiana*, NPK, stevioside

Genetic variations in gymnemic acid content of *Gymnema sylvestre* leaves

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Abstract: Effect of seasonal variations on gymnemic acid content in the leaves of *Gymnema sylvestre* (R.Br.) during summer (May 2001); rainy (September 2001) and winter (January 2002) was evaluated during 2001-02. The objective of the study was to determine the optimum season for leaf harvest. Leaf samples for analysis included young and old leaves and gymnemic acid was estimated. From the results it was found that the gymnemic acid was the highest in Genotype 3 and the least in Genotype 8 recording 7.45 and 4.29 % gymnemic acid respectively. Among seasons Rainy season (6.53) recorded higher gymnemic acid over summer (6.41) or winter (6.1).

Key words: *Gymnema sylvestre*; gymnemic acid.

Effect of fertilizer levels on herbage yield and bacoside content of *Bacopa monnieri*

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Abstract: *Bacopa monnieri* is an economically important herb used against nervous disorders, skin affections and improving memory or learning skills. The objective of the present investigation was to determine the effect of applied fertilizers on herbage yield and the active principle yield. The results suggested that application of fertilizers significantly increased dry herbage yield (2469.8 kg/ha) at 40:20:20 N:P2O5:K2O kg/ha. compared to control (1579.2 kg/ha). Yield traits like inter-nodal length, branches per node, roots per node, root-shoot ratio were higher in plants that received 40:20:20 N:P2O5:K2O kg/ha. The bacoside content was also the highest in the above fertiliser applied treatment suggesting that application of 40:20:20 N:P2O5:K2O kg/ha. was beneficial in improving herbage yield and bacoside content in *Bacopa monnieri*.

Key words: *Bacopa monnieri*; bacoside; NPK,

**Effect of spacing on growth and yield performance of mango - ginger
(*Curcuma amada* Roxb.)
Cv. *Sirsi Local***

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Abstract: A field investigation was laid out to study the effect of seven levels of spacing on growth and yield of mango-ginger cv. under northern dry zone of Karnataka. Spacing levels significantly influenced growth and yield and the maximum number of tillers (4.30), leaves (16.10) and leaf area (43.20 dm²) was recorded by wider spacing (45 x 45 cm), where as maximum leaf area index was recorded by closer spacing of 30 x 15 cm (5.80) . Closer spacing of 30 x 15 cm recorded the highest fresh rhizome yield (65.99 t/ha) compared to the lowest yield recorded by the wider spacing of 45 x 45 cm (19.15 t/ha)

Key words : *Curcuma amada*, Mango-ginger, spacingtrialk, rhizome yield.

**Effect of AM fungi and methods of drying on forskolin content and yield in
Coleus forskohlii Briq.**

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Abstract: In an experiment, seven AM fungi (*Glomus intraradices*, *G. fasciculatum*, *G. monospermum*, *G. mosseae*, *Gigaspora margarita*, *Sclerocystis dussii* and Consortia-I) were applied as pre-harvest treatment and three different methods of drying of tubers of *Coleus forskohlii* Briq. was tried during 2003-04 in order to study the effect on forskolin content and yield. The *Gigaspora margarita* and Consortia-I inoculated tubers dried faster (47hrs) and gave maximum recovery (15.8% and 16.0%, respectively). Forskolin content (0.342%) and yield (77.92mg/plant) were high in tubers of Consortia-I applied plants. Fresh tubers of 4cm long were dried under sun (mean 25.4°C), solar (45 ± 5° C) and electric (60 ± 2°). The study revealed that sun drying gave maximum recovery (14.77%) and higher forskolin content and yield over solar and electrical drying (hot air oven). Electrical drying showed minimum forskolin content though the time taken for drying was least (36.25hrs).

Key words: *Coleus forskohlii*, AM fungi, tubers, drying, forskolin methods content

Effect of pre-treatments and drying methods on quality and saponin content of safed musli tubers

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Abstract: Peeled tubers of safed musli (*Chlorophytum borivillianum* Santp. & Fern.) were pre-treated with bleaching agents like citric acid and potassium metabisulphite (KMS) to improve the appearance. The pre-treated tubers were dried under sun, solar cabinet and hot air oven. The least reduction in length (7.92%) and weight (80.27%) was observed under hot air oven. The organoleptic studies and colour chart reference recorded maximum points (5.0) and better grade (158D) for solar dried tubers. Different drying methods did not show any significant difference in recovery percentage. Hot air oven drying takes lesser time (< 48hrs.) compared to solar (48hrs) and sun drying (64hrs) for drying of safed musli tubers. KMS pre-treated tubers (2% for 45 min.) when dried under solar cabinet recoded highest saponin content (3.93%).

Keywords: *Chlorophytum borivillianum*, drying method, saponin

Isolation, characterization and antimicrobial activity of *Acacia leucophloea*

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Abstract: The dry extract of the *Acacia leucophloea* was subjected to extraction by maceration. The ethyl acetate fraction of the alcoholic extract upon column chromatography resulted a compound and characterized as 4'-hydroxy-non-6'-en-yl benzoate (A1). The alcoholic extract and compound A1 were evaluated for antimicrobial activity against certain Gram +ve, -ve and fungal organisms. Ciprofloxacin (10mg/ml) and ketokonazole (50mg/ml) were used as standards for antibacterial and antifungal agents respectively. DMSO was used as control. The minimum inhibitory concentration (MIC) was recorded.

Key words: *Acacia leucophloea*, isolation, characterization, antimicrobial activity.

Designing and characterization of fast dispersible tablets for Triphala by wet granulation method

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Abstract: Preparation of ayurvedic powder formulation into tablets may increase dose uniformity. With a view to reduce the size and patients compliance, it was decided to develop formulations containing extract of Triphala. The purpose of this work was to develop fast dispersible tablets of Triphala by direct compression, wet granulation and sublimation method. Different disintegrants like Crospovidone, Croscarmellose sodium or by Sodium starch glycolate were used. Pre and post formulation parameters were studied for all the batches. Crospovidone was found to be the best disintegrant the formulations were found to be stable after carrying out the stability studies for two months.

Key words:Fast dispersible tablets, triphala, super disintegrants, stability

Screening antibacterial activity of *Calendula officinalis*, *Wrightia tinctoria*, *Cassia tora* and *Azadirachta indica* on *Staphylococcus aureus* and *Escherichia coli*

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Abstract: Extracts of *Calendula officinalis*, *Wrightia tinctoria*, *Cassia tora* and *Azadirachta indica* were screened in comparison with standard anti-microbial cefazolin sodium. The *in-vitro* antibacterial activity of petroleum ether, chloroform, methanol & water extracts of the plants were studied by diffusion method using *Staphylococcus aureus* (gram+ve) *Escherichia coli* (gram-ve) as test organisms. Zone of inhibition ranged from 10 to 20 mm for all herbs in petroleum ether extract for both *S. aureus* and *E. coli*. *C. officinalis* recorded a maximum of 24 mm zone of inhibition against *S. aureus* whereas *W. tinctoria* 24 mm in chloroform extract. In methanol extract *C. tora* recorded 13 and 16 mm zone of inhibition against *S. aureus* and *E. coli* respectively. The aqueous extract recorded a maximum zone of inhibition of 12 mm against *S. aureus* and 14 mm against *E. coli* from *W. tinctoria* and *A. indica* respectively.

Key words: *Calendula officinalis*; *Wrightia tinctoria*; *Cassia tora*; *Azadirachta indica*; *Staphylococcus aureus*; *Escherichia coli*; antibacterial activity.

In-vitro* anticariogenic activity of five selected medicinal plants against *Streptococcus mutans*, *Lactobacillus lactis* and *Actinomyces viscosus

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Abstract: The objective of this study was to evaluate the *in-vitro* anticariogenic activity of methanolic extract of *Azadirachta indica*, *Curcuma longa*, *Glycyrrhiza glabra*, *Mentha spicata*, *Ocimum basilicum* and *Phyllanthus emblica* against *Streptococcus mutans* (ATCC 21752); *Lactobacillus lactis* (ATCC 19435) and *Actinomyces viscosus* (ATCC 19246). The results showed that the methanolic extract of fruits of *P. emblica* recorded maximum zone of inhibition 14, 13 and 15 mm against *Streptococcus mutans*; *Lactobacillus lactis* and *Actinomyces viscosus* respectively. *G. glabra* also recorded significantly higher zone of inhibition against all the three bacteria tested. However *C. longa* recorded no zone of inhibition. Experiments on minimum inhibition concentration, the plant extract of *P. emblica* exhibited the highest antimicrobial activity followed by *G. glabra* and *A. indica* against *S. mutans*; *L. lactis* and *A. viscosus* at 3×10^8 cells/ml bacterial suspension.

Key words: *Azadirachta indica*, *Curcuma longa*, *Glycyrrhiza glabra*, *Mentha spicata*, *Ocimum basilicum*, *Phyllanthus emblica*, *Streptococcus mutans*, *Lactobacillus lactis* and *Actinomyces viscosus*

Anti-inflammatory and analgesic activity of the topical preparation of *Alpinia galanga* willd

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Abstract: *Alpinia galanga* Willd. (Zingiberaceae) has been used in Indian herbal medicine in the treatment of dermatitis. The extract of *Alpinia galanga* is used in i.p. administrations due to its anti-inflammatory and analgesic activity. These effects were studied using carrageenan-induced edema and formalin test by topical administration. Several formulations were prepared and the best cream was chosen as vehicle. Piroxicam gel and methyl salicylate ointment were studied as positive control for anti-inflammatory and analgesic activity, respectively. The edema inhibitions of preparations containing extract at the doses of 1–5%w/w were significantly different from control group. The anti-inflammatory effect of SN 4-5% was similar to the effect of Piroxicam gel at 3 h after carrageenan injection. Topical preparation containing *Alpinia galanga* methanolic extract showed analgesic effect in concentrations more than 4% w/w in early phase in formalin test. This activity was observed in concentrations more than 3% w/w in late phase. The topical analgesic activity of extract was less than the analgesic activity of methyl salicylate ointment.

Keywords: *Alpinia galanga*, anti-inflammatory activity, analgesic activity, topical cream.

**Production of volatile oil constituent linalool from the static cultures of
*Ocimum basilicum***

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Abstract: Static cultures of *Ocimum basilicum* were established on M.S medium supplemented with various growth regulators using different explants (cotyledon, shoot and root) of aseptically germinated seedlings of *Ocimum basilicum*. The production of volatile oil constituent, linalool from the different explants and the natural herb was estimated by GC method.

Key words: *Ocimum basilicum*, tissue culture, linalool

In vitro* evaluation of free radical scavenging potential of *Cardiospermum halicacabum

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Abstract: The present study was conducted to assess the antioxidant activity of *Cardiospermum halicacabum* leaves, against different free radicals and lipid peroxidation *in vitro*. The test extract exhibited considerable inhibition in DPPH free radical formation and nitric oxide inhibition. Superoxide scavenging and anti-lipid peroxidation potential which was performed using liver homogenate showed moderate response. Abundance of rutin (1.5%) could be one of the possible reasons for the free radical scavenging potential of *C. halicacabum* leaves. It can be concluded that the free radical scavenging activity of the plant extract may be responsible for the therapeutic properties it possess.

Key words: antioxidant, *Cardiospermum halicacabum*, free radical scavenging

Comparative study of methanolic extract of *Bergenia ligulata* Yeo., with isolated constituent bergenin in urolithiatic rats.

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Abstract: The rhizome of *Bergenia ligulata* yeo., commonly known as Pashaanabeda are used by a large number of tribes and in indigenous system of medicine as a diuretic and as pashaanabeda, to remove the renal stone (urinary calculi). In the present studies the methanolic extract of rhizome *Bergenia ligulata* and the isolated constituents Bergenin of methanolic extract *Bergenia ligulata* was compared for urolithiatic activity in albino rats induced by 3% glycolic acid. The results showed that and methanolic extract (500mg/kg) of rhizome exhibited marked dissolution of urinary calculi (calcium oxalate) both urine and kidney constituents and varied the activity of kidney enzyme and there was no change in liver LDH, then the effects in the isolated constituent bergenin

Keywords: *Bergenia ligulata*, bergenin. urolithiasis, glycolic acid.

Potential antimutagenic activity of *Cassia auriculata* root extract

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Abstract: The antimutagenic potency of *Cassia auriculata* root extract (methanolic) was evaluated against acridine orange (AO) by using *Euglena gracilis* as a eukaryotic test model, based on the ability of the test formulation to prevent the mutagen-induced damage of chloroplast DNA. The *Cassia auriculata* root extract showed significant concentration-dependent inhibitory effect against the AO-induced chloroplast mutagenesis of *E. gracilis*. Possible mechanism of their antimutagenic activity of methanolic extract of *Cassia auriculata* roots, could be the scavenging action for reactive oxygen species (ROS) such as singlet oxygen and/or superoxide anion radical as ROS play a central role in multistage mutagenesis and carcinogenesis.

Key Words: *Cassia auriculata* root extract, antimutagenic.

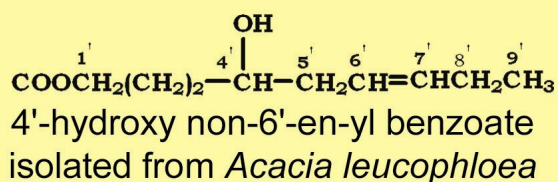
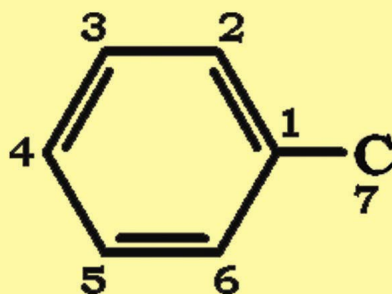
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