Nome Popular: salsão

Partes Usadas: Caule, folhas, sementes e raiz.

Uso Popular:

Decocção das folhas e raízes:

• diurético;
• depurativo;
• carminativo;
• no tratamento da artrite, reumatismo;
• cálculos biliares.

Infusão das sementes:

• gases, má digestão.

Uso Cientificamente Comprovados ou em Estudo:

Tratamento de ascaris lumbricoides (1)
Rico em vitamina E (8)
Rico em pro vitamina A (15)
Antifúngico (9, 11)
Anti flogístico e anti inflamatório (16, 22)
Hepatoprotetor (6, 17)
Diminuição do colesterol (18)
Prevenção do câncer (19)
vasodilatação por inibição dos canais de calico (21)
Anti oxidante (5)

Efeitos colaterais:

Afetam a ação do cytocromo P450 no fígado interferindo com a ação de diversos medicamentos (2)
Dermatite de contato pós exposição a luz solar

Biblioteca:

1. Anthelmintic efficacy of traditional herbs on Ascaris lumbricoides.  
El Garhy MF, Mahmoud LH.  
Department of Zoology, Faculty of Science, Cairo University, Egypt.

The ascaricidal efficacy of six commonly used traditional herbs. Artemesia santonica, Inula helenium, Cassia abutnsifolia, Albizzia lebbek, Acacia auriculiformis and oil of Apium graveolens, was tested in vitro against the eggs and larvae of Ascaris lumbricoides. Aqueous extracts of 1% Artemesia and 5% of Albizzia and Inula were effective in killing both the infective larvae ill less than 40 days and eggs in 20 days. The results showed that Artemesia, Albizzia and to less extent Inula were promising anthelmintics against Ascaris lumbricoides. Extracts of the other tested herbs were less or no value.
2. The effect of celery and parsley juices on pharmacodynamic activity of drugs involving cytochrome P450 in their metabolism.
Jakovljevic V, Raskovic A, Popovic M, Sabo J.
Institute of Chemistry, Faculty of Sciences, Novi Sad, Yugoslavia.

Celery (Apium graveolens) and parsley (Petroselinum sativum), plants used worldwide in human nutrition, are the natural sources of methoxsalen. In this study we investigated the effect of mice pretreatment with juices of this plants on the hypnotic action of pentobarbital and analgesic action of paracetamol and aminopyrine, the drugs involving cytochrome P450 superfamily in their metabolism. In mice pretreated with celery and parsley juices a prolonged action of pentobarbital with respect to control was observed, statistical significance being attained only with parsley-pretreated animals. Both pretreatments increased and prolonged the analgesic action of aminopyrine and paracetamol, pretreatment with parsley being again more effective. Celery and parsley juices given to animals two hours before their decapitation caused a significant decrease of cytochrome P450 in the liver homogenate as compared to control.

3. Some ideas for further research in reproduction.
Hill RT.

PIP: Comments are made on reproductive research problems in the hope that they may serve as a stimulus for effective research in the areas concerned. In studying the effects of drugs on the nerve elements involved in reproductive processes, no one has attempted to delineate the neural part of endometrial function, or to show if, or how it relates to the hormonal effect on the same tissues. Hysterectomy, removal of about 75% of the uterus, and the denervation of the guinea pig uterus greatly extend the life of the corpus luteum. If a luteolysin exists, the question of whether it relates to the parasympathetic control of uterine glandular epithelium, to the hormonal balance, or to both of these 2 functional entities remains to be answered. Clinicians indicate that women of reproductive age, who have been diagnosed as having a traumatic lumbar cord section, apparently have normal menstrual cycles, conceive, carry to full term, and have normal delivery. Further studies and statistics are needed to learn why this is true. The effect of vagotomy on gonadal function and morphology in the primate has not received careful consideration. Study of the effect of diet on the content of uterine luminal fluids has been neglected as has been the possibility that the contact of an IUD will change the secretion of the irritated glandular epithelium. Whether zygote implantation results from physical stimulation or a physiological process is unknown. No research data appear to exist that were taken directly from North American Indian women who are or have been habitual drinkers of an extract of Lithosperm ruderalis which is said to reduce fertility. The effect of the celery plant, Apium graveolens, on the reproductive process is another area of study that might be undertaken.

4. Allergens in celery and zucchini.
Allergy. 2002;57 Suppl 72:100-5
Department of Allergology, Paul-Ehrlich-Institut, Paul-Ehrlich-Strasse 51-59, D-63225 Langen, Germany.

The aim of this study was to confirm allergy to celery tuber and to zucchini, for the first time, by DBPCFC, and to identify the allergens recognized by IgE from DBPCFC-positive patients. Therefore, raw vegetables were hidden in a broccoli drink, and a DBPCFC-procedure was developed that consisted of a spit and swallow protocol, making sure that the procedure was safe for the patients and that reactions strictly localized to the oral cavity as well as systemic reactions
could be reproduced by DBPCFC. The allergens in celery and zucchini extract were identified by immunoblot inhibition using allergen extracts, recombinant allergens and purified N-glycans as inhibitors. Celery allergy was confirmed in 69% (22/32) of subjects with a positive case history. Four subjects with a history of allergic reactions to zucchini had a positive DBPCFC to this vegetable. During DBPCFC, systemic reactions were provoked in 50% (11/22) of the patients to celery, and in 3/4 of the zucchini-allergic patients. The Bet v 1-related major celery allergen was detected by IgE of 59% (13/22) of the patients. Cross-reactive carbohydrate epitopes (CCD) bound IgE of 55% (12/22) of the celery-allergic patients and in 2/4 of the subjects with zucchini allergy. Profilin was a food allergen in celery in 23% (5/22) and in zucchini in 2/4 of the cases. A zucchini-specific allergen was detected by IgE from one patient. We conclude that ubiquitous cross-reactive structures are important in allergy to both, celery and zucchini, and that a specific association to birch pollen allergy exists in allergy to celery (mediated by Api g 1), but not in zucchini allergy.

5. Antioxidant, cyclooxygenase and topoisomerase inhibitory compounds from Apium graveolens Linn. seeds.
Momin RA, Nair MG.
Department of Horticulture and National Food Safety and Toxicology Center, Michigan State University, East Lansing 48824, USA.
Cyclooxygenase inhibitory and antioxidant bioassay-directed extraction and purification of celery seeds yielded sedanolide (1), senkyunolide-N (2), senkyunolide-J (3), 3-hydroxymethyl-6-methoxy-2,3-dihydro-1H-indol-2-ol (4), L-tryptophan (6), and 7-[3-(3,4-dihydroxy-4-hydroxymethyl-tetrahydro-furan-2-yl oxy)-4,5-dihydroxy-6-hydroxymethyl-tetrahydro-pyran-2-yl oxy]-5-hydroxy-2-(4-hydroxy-3-methoxy-phenyl)-chromen-4-one (7). The structures of compounds 1-7 were determined using spectroscopic methods. Compound 4 is reported here for the first time. At 250 pg ml(-1), compounds 1-4, 6 and 7 displayed prostaglandin H endoperoxide synthase-I (COX-I) and prostaglandin H endoperoxide synthase-II (COX-II) inhibitory activities at pH 7. The acetylated product (5) of compound 4 also inhibited COX-I and COX-II enzymes when tested at 250 microg ml(-1). Compounds 6 and 7 exhibited good antioxidant activity at concentrations of 125 and 250 microg ml(-1). Only compounds 1-3 exhibited topoisomerase-I and -II enzyme inhibitory activity at concentrations of 100, 200 and 200 microg ml(-1), respectively.

Ahmed B, Alam T, Varshney M, Khan SA.
Department of Pharmaceutical Chemistry, Antihepatotoxic Research Laboratory, Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110 062, India. baharchem@yahoo.com
The different extracts of Apium graveolens Linn. (Apiaceae) and Croton oblongifolius Roxb. (Euphorbiaceae) were tested for their hepatoprotective activity against CCl(4) induced hepatotoxicity in albino rats. The degree of protection was measured by using biochemical parameters like serum transaminases (SGOT and SGPT), alkaline phosphatase, total protein and albumin. The methanolic extracts showed the most significant hepatoprotective activity comparable with standard drug silymarin. Other extracts namely petroleum ether and acetone also exhibited a potent activity.

7. Furanocoumarins in celery and parsnips: method and multiyear Canadian survey.
Lombaert GA, Siemens KH, Pellaers P, Mankotia M, Ng W. Health Canada, Health Products and Food Branch, Winnipeg.

The natural occurrence of biologically active furanocoumarins in common vegetables is an area of increasing interest with respect to human health. In this study, an efficient, rugged, and sensitive liquid chromatographic method with ultraviolet photodiode array detection was developed for the estimation of 5 biologically active furanocoumarins (psoralen, bergapten, xanthotoxin, trioxsalen, and angelicin) in celery and parsnips. When authentic samples were spiked with a mixture of furanocoumarins at individual levels of 2 to 10 microg/g, the method produced overall recoveries of 77 and 75% of all furanocoumarins from celery and parsnips, respectively. The method was applied in 2 laboratories to a multiyear survey of more than 200 samples. Of 110 parsnip samples, 109 (99%) contained quantitatable levels of furanocoumarins. The mean level of total furanocoumarins in the positive parsnip samples was 15.1 microg/g; the maximum level detected was 145 microg/g. Of 114 celery samples, 88 (77%) contained quantitatable levels of furanocoumarins. The mean level of total furanocoumarins in the positive celery samples was 1.9 microg/g; the maximum level detected was 15.2 microg/g. Xanthotoxin and bergapten were the most commonly detected furanocoumarins in both celery (68 and 63%) and parsnips (97 and 96%). Xanthotoxin had the highest mean level of positives in both celery (1.3 microg/g) and parsnips (8.5 microg/g). Little year-to-year variation in either total furanocoumarin levels or incidence was noted.

8. Alpha-tocopherol content in 62 edible tropical plants.
Ching LS, Mohamed S.
Faculty of Food Science and Biotechnology, Universiti Putra Malaysia, 43400 Serdang Selangor, Malaysia.

Vitamin E was determined by the high-performance liquid chromatography (HPLC) method. All the plants tested showed differences in their alpha-tocopherol content and the differences were significant (p < 0.05). The highest alpha-tocopherol content was in Saurops androgyynus leaves (426.8 mg/kg edible portion), followed by Citrus hystrix leaves (398.3 mg/kg), Calamus scirinum (193.8 mg/kg), starfruit leaves Averrhoa belimbi (168.3 mg/kg), red pepper Capsicum annum (155.4 mg/kg), local celery Apium graveolens (136.4 mg/kg), sweet potato shoots Ipomoea batatas (130.1 mg/kg), Pandanus odorus (131.5 mg/kg), Oenanthe javanica (146.8 mg/kg), black tea Camelia chinensis (183.3 mg/kg), papaya Carica papaya shoots (111.3 mg/kg), wolfberry leaves Lycium chinense (94.4 mg/kg), bird chili Capsicum frutescens leaves (95.4 mg/kg), drumstick Moringa oleifera leaves (90.0 mg/kg), green chili Capsicum annum (87 mg/kg), Allium fistulosum leaves (74.6 mg/kg), and bell pepper Capsicum annum (71.0 mg/kg). Alpha-Tocopherol was not detected in Brassica oleracea, Phaeomeria speciosa, Pachyrrhizus speciosa, Pleurotus sajor-caju, and Solanum melongena.

11. Mosquitocidal, nematicidal, and antifungal compounds from Apium graveolens L. seeds.
Momin RA, Nair MG.
Bioactive Natural Products and Phytoceuticals, Department of Horticulture and National Food Safety and Toxicology Center, Michigan State University, East Lansing 48824, USA.

The methanolic extract of Apium graveolens seeds was investigated for bioactive compounds and resulted in the isolation and characterization of mosquitocidal, nematicidal, and antifungal compounds sedanolide (1), senkyunolide-N (2), and senkyunolide-J (3). Their structures were determined by 1H and 13C NMR spectral methods. Compounds 1-3 gave 100% mortality at 25, 100, and 100 microg mL(1), respectively, on the nematode, Panagrellus...
redivivus. Compound 1 showed 100% mortality at 50 microg mL\(^{-1}\) on nematode, Caenorhabditis elegans, and fourth-instar mosquito larvae, Aedes aegyptii. Also, it inhibited the growth of Candida albicans and Candida parapsilosis at 100 microg mL\(^{-1}\). Compounds 2 and 3 were isolated for the first time from A. graveolens. This is the first report of the mosquitocidal, nematicidal, and antifungal activities of compounds 1-3.

12. Bioactive compounds and 1,3-Di[(cis)-9-octadecenoyl]-2-[(cis,cis)-9, 12-octadecadienoyl]glycerol from Apium graveolens L. seeds.
Momin RA, Ramsewak RS, Nair MG.
Bioactive Natural Products Laboratory, Department of Horticulture and National Food Safety and Toxicology Center, Michigan State University, East Lansing, Michigan 48824-1325, USA.

Bioassay-directed isolation and purification of the hexane extract of Apium graveolens L. seeds led to the characterization of three compounds: beta-selinene (1), 3-n-butyl-4,5-dihydropthalide (2) and 5-allyl-2-methoxyphenol (3). The structures of these compounds were established by using \(^1\)H and \(^{13}\)C NMR spectral methods. Compounds, 1-3 demonstrated 100% mortality on fourth-instar Aedes aegyptii larvae at 50, 25, and 200 microg mL\(^{-1}\), respectively, in 24 h. Also, 2 inhibited the growth of Candida albicans and Candida kruseii at 100 microg mL\(^{-1}\). It inhibited both topoisomerase-I and -II enzyme activities at 100 microg mL\(^{-1}\). Compound 2 displayed 100% mortality at 12.5 and 50 microg mL\(^{-1}\), respectively, when tested on nematodes, Panagrellus redivivus and Caenorhabditis elegans. The triglyceride, 1,3-di[(cis)-9-octadecenoyl]-2-[(cis,cis)-9, 12-octadecadienoyl]glycerol (4) and 3 were isolated for the first time from A. graveolens seeds, although 4 was not biologically active.

Luttkopf D, Ballmer-Weber BK, Wuthrich B, Vieths S.
Department of Allergology, Paul-Ehrlich-Institut, Langen, Germany.

BACKGROUND: Recently, for the first time, allergy to celery was confirmed by double-blind placebo-controlled food challenge (DBPCFC). Api g 1, Api g 4, cross-reactive carbohydrate determinants (CCD), and a 60 kDa allergen have been described as celery allergens. OBJECTIVE: To get insights in IgE responses of patients with a positive DBPCFC to celery tuber (celeriac) compared with patients with a negative challenge test. METHODS: Specific IgE to native and heated celery tuber and to recombinant Api g 1, the major celery allergen, were determined by enzyme allergosorbent test and immunoblotting. IgE binding to Api g 1, Api g 4, and CCD was confirmed by inhibition experiments that used recombinant Api g 1, recombinant Api g 4, pure N-glycans, and extracts of celeriac, lychee fruit, and pollens of birch, mugwort, and timothy grass as inhibitors. RESULTS: Immunoblotting with sera from 22 patients with a positive DBPCFC to celeriac confirmed the presence of known allergenic structures: The major allergen Api g 1 (16 kDa) was recognized by IgE from 13 of 22 patients (59%). Another major allergen was CCD, determined by IgE reactivity in 12 of 22 patients (55%). Celery profilin, Api g 4, was recognized by IgE from 5 of 22 patients (23%). CONCLUSION: Our DBPCFC-positive patients exclusively presented IgE to known celery allergens, although the prevalences were slightly different than were previously reported. No obvious differences were found in patients with positive IgE antibody but negative challenge test. IgE binding to all 3 structures in celeriac extract was inhibited by birch pollen extract, whereas mugwort pollen extract could only inhibit IgE reactivity to Api g 4 and CCD. Inhibition experiments with a purified carbohydrate moiety clearly showed that the IgE epitope mannose-xylose-fucose-glycan
Allergy Unit, Department of Dermatology, University Hospital, Zurich, Switzerland.

BACKGROUND: Celery root is a frequent cause of food allergy in pollen-sensitized patients. Because of problems in blinding challenges with fresh vegetables and the risk of anaphylactic reactions, no double-blind, placebo-controlled, food challenges (DBPCFCs) with celery have been published so far.

OBJECTIVE: The aim of the study was to confirm the clinical relevance of celery as a food allergen by DBPCFCs and to evaluate current diagnostic procedures in patients with true allergy.

METHODS: DBPCFCs were performed in 32 patients with a history of an allergic reaction to celery. The patients underwent skin prick tests (SPTs) with celery extracts, crude celery, and different pollen extracts. Specific IgE for celery was determined by using the CAP method.

RESULTS: Twenty-two of 32 patients had a positive DBPCFC result. Two patients reacted to placebo, and 8 patients did not respond to the challenge. Of the nonresponders, 4 reacted to an open provocation with celery. The sensitivity of CAP determination for specific IgE (> or =0.7 kU/L) to celery in patients with a positive DBPCFC result was 73%, 48% to 86% for SPTs (> or =3 mm) with commercial extracts, and 96% for prick-to-prick tests with crude celery. The positive predictive value of the SPT and CAP tests was between 87% and 96%, whereas the specificity and negative predictive values were poor.

CONCLUSION: This study confirms the importance of celery as a food allergen for use in DBPCFCs. The SPT and CAP methods proved to be reliable for the diagnosis of a relevant allergy to celery in regard to sensitivity and positive predictive value but not to specificity and negative predictive value.

15. Determination of provitamin A of green leafy vegetables by high performance liquid chromatography and open column chromatography.
de Almeida-Muradian LB, Rios MD, Sasaki R.
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The purpose of study was to determine the provitamin A value through beta-carotene analysis of five Brazilian leafy vegetables: carrot leaves (Daucus carota L.), beet leaves (Beta vulgaris L.) “serralha” (Sonchus oleracea L.), mint (Mentha piperita LL.) and celery leaves (Aplum graveolens. L.). Two analysis methods were used: open-column chromatography (OCC) and high performance liquid chromatography (HPLC). Two analysis methods were used: open-column chromatography (OCC) and high performance liquid chromatography (HPLC). Recovery tests were done for both methods and 92% of recovery was obtained for OCC and for HPLC 102%. The provitamin A value obtained for these leaves, using OCC were: 491 RE/100 g for carrot, 1097 for beet, 1390 for "serralha", 1016 for mint and 911 for celery. The results obtained using HPLC were 495 RE/100 g for carrot leaves, 1095 for beet leaves, 1472 for "serralha" leaves, 940 for mint leaves and 908 for celery leaves. We concluded that both methods presented good recoveries, are similar for determination of provitamin A in the leaves and they can be used for routine analysis. These five leaves can be as an inexpensive and easily obtained sources of provitamin A in Brazil.
Atta AH, Alkofahi A.
Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine, Jordan University of Science and Technology, Irbid.

The anti-nociceptive effect of ethanolic extract of 11 traditionally used Jordanian plants was studied by using the acetic acid-induced writhing and hot-plate test in mice. The anti-inflammatory effect of these plants was determined by xylene-induced ear oedema in mice and cotton pellet granuloma test in rats. Mentha piperita, Cinnamomum zeylanicum, Apium graveolens, Eucalyptus camaldulentis, and Ruta graveolens possess an anti-nociceptive effect against both acetic acid-induced writhing and hot plate-induced thermal stimulation. M. piperita, Jasminum officinale, Commiphora molmol, and Beta vulgaris possess an anti-inflammatory effect against acute (xylene-induced ear oedema) and chronic (cotton-pellet granuloma) inflammation. The anti-nociceptive and anti-inflammatory effects were dose dependent. These data affirm the traditional use of some of these plants for painful and inflammatory conditions.

17. Hepatoprotective activity of Apium graveolens and Hygrophila auriculata against paracetamol and thioacetamide intoxication in rats.
Singh A, Handa SS.
University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh, India.

Seeds of Apium graveolens L. (Apiaceae) and Hygrophila auriculata (K. Schum.) Heine (Syn. Astercantha auriculata Nees, Acanthaceae) are used in Indian systems of medicine for the treatment of liver ailments. The antihepatotoxic effect of methanolic extracts of the seeds of these two plants was studied on rat liver damage induced by a single dose of paracetamol (3 g/kg p.o.) or thioacetamide (100 mg/kg, s.c.) by monitoring several liver function tests, viz. serum transaminases (SGOT and SGPT), alkaline phosphatase, sorbitol dehydrogenase, glutamate dehydrogenase and bilirubin in serum. Furthermore, hepatic tissues were processed for assay of triglycerides and histopathological alterations simultaneously. A significant hepatoprotective activity of the methanolic extract of the seeds of both the plants was reported.

18. Effects of aqueous celery (Apium graveolens) extract on lipid parameters of rats fed a high fat diet.
Tsi D, Das NP, Tan BK.
Department of Pharmacology, Faculty of Medicine, National University of Singapore.

The antihyperlipidemic property of aqueous celery extract was studied in rats. Two groups of Wistar rats were fed a high fat diet for eight weeks to induce hyperlipidaemia. One group was supplemented with aqueous celery extract in the diet while the other group served as control. At the end of the experiment, a significant reduction was found in the serum total cholesterol (TC), low density lipoprotein cholesterol (LDL-C), and triglyceride (TG) concentrations in the celery-treated rats. However, the concentration of hepatic TG was significantly higher in the celery-treated group than in the control group. Hepatic triacylglycerol lipase (HL) activity was found to be significantly lower in the celery-treated rats while the reverse was observed for the hepatic microsomal P450 content. Analysis of an ethereal extract of the aqueous extract of celery by thin layer chromatography (TLC) with two different solvent systems showed that the extract did not contain 3-n-butylphthalide (BuPh), a unique compound in celery that has previously been reported to have lipid-lowering action. Our study indicates that other active principle(s) could be responsible for the
observed effects of aqueous celery extract on serum and hepatic lipid levels.

Zheng GQ, Kenney PM, Zhang J, Lam LK.
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Bioassay-directed fractionation of celery seed oil from the plant Apium graveolens (Umbelliferae) led to the isolation of five natural products, including d-limonene, p-mentha-2,8-dien-1-ol, p-mentha-8(9)-en-1,2-diol, 3-n-butyl phthalide, and sedanolide. Of these compounds p-mentha-2,8-dien-1-ol,3-n-butyl phthalide, and sedanolide exhibited high activities to induce the detoxifying enzyme glutathione S-transferase (GST) in the target tissues of female A/J mice. 3-n-Butyl phthalide and sedanolide (20 mg/dose every two days for a total of 3 doses) increased GST activity 4.5-5.9 and 3.2-5.2 times over the controls in the mouse liver and small intestinal mucosa, respectively. At the same dose, p-mentha-2,8-dien-1-ol induced GST activity about 3.7-fold above that of the controls. Thus, these compounds were further tested for their ability to inhibit benzo[a]pyrene- (BP) induced tumorigenesis in mice. After treatment with 3-n-butyl phthalide and sedanolide, the tumor incidence was reduced from 68% to 30% and 11%, respectively. About 67% and 83% reduction in tumor multiplicity was also observed with 3-n-butyl phthalide and sedanolide. p-Mentha-2,8-dien-1-ol produced only a small or no significant reduction of forestomach tumor formation. The data indicating that 3-n-butyl phthalide and sedanolide were both active in tumor inhibition and GST assays suggested a correlation between the inhibitory activity and the GST-inducing ability. The phthalides are known to determine the characteristic odor of celery. The results suggest that phthalides, as a class of bioactive natural products occurring in edible umbelliferous plants, may be effective chemopreventive agents.

20. [Plasma levels of psoralens after celery ingestion]
Ann Dermatol Venereol. 1993;120(9):599-603.
[Article in French]
Gral N, Beani JC, Bonnot D, Mariotte AM, Reymond JL, Amblard P.
Clinique de Dermatologie, CHUR, Grenoble.

Psoralens are photosensitizing substances present in many vegetables, some of which are routinely consumed. These vegetables are responsible for contact phytodermatitis, but it was agreed that they did not produce photodermatitis when taken orally. Ljunggren has recently questioned this concept by reporting a case of phototoxic accident which occurred after ingestion of 450 grams of celery roots (Apium graveolens). In a study in healthy volunteers we looked for psoralens in blood and analyzed the cutaneous photosensitivity by the minimal phototoxic doses (MPD) method, after ingestion of celery in large amounts (500 grams and more). Plasma concentrations of psoralens were inexistant in all subjects and at all sampling times, and no phototoxic reaction was detected by MPD. Celery roots, therefore, do not seem to be photosensitizing, even after ingestion in large amounts, but they might increase the risk of phototoxicity in PUVA-therapy. The same applies to fennel and parsnip.

Ko FN, Huang TF, Teng CM.
Pharmacological Institute, College of Medicine, National Taiwan University, Taipei.

The effect of apigenin, isolated from Apium graveolens, on the contraction of
rat thoracic aorta was studied. Apigenin inhibited the contraction of aortic rings caused by cumulative concentrations of calcium (0.03-3 mM) in high potassium (60 mM) medium, with an IC50 of about 48 microM. After pretreatment it also inhibited norepinephrine (NE, 3 microM)-induced phasic and tonic contraction in a concentration (35-140 microM)-dependent manner with an IC50 of 63 microM. At the plateau of NE-induced tonic contraction, addition of apigenin caused relaxation. This relaxing effect of apigenin was not antagonized by indomethacin (20 microM) or methylene blue (50 microM), and still existed in endothelial denuded rat aorta or in the presence of nifedipine (2-100 microM). Neither cAMP nor cGMP levels were changed by apigenin. Both the formation of inositol monophosphate caused by NE and the phasic contraction induced by caffeine in the Ca(2+)-free solution were unaffected by apigenin. 45Ca2+ influx caused by either NE or K+ was inhibited by apigenin concentration-dependently. It is concluded that apigenin relaxes rat thoracic aorta mainly by suppressing the Ca2+ influx through both voltage- and receptor-operated calcium channels.

Al-Hindawi MK, Al-Deen IH, Nabi MH, Ismail MA.
Biological Research Centre, Scientific Research Council, Jadiriyah, Baghdad, Iraq.

Five plants (Myrtus communis, Apium graveolens, Matricaria chamomilla, Withania somnifera and Achillea santolina) grown in Iraq were assessed for their anti-inflammatory activity on intact rats by measuring the suppression of carrageenan-induced paw edema produced by 1/10 of the intraperitoneal LD50 doses for the respective 80% ethanol extracts. Acetylsalicylic acid was used as the standard drug. Results showed that the plants possessed varying degrees of anti-inflammatory activity and were classified in the following descending order of activity: W. somnifera greater than A. graveolens greater than A. santolina greater than M. chamomilla greater than M. communis.

23. The essential oil of Apium graveolens var. secalinum and its cercaricidal activity.
Saleh MM, Zwaving JH, Malingre TM, Bos R.

The composition of the essential oil of the fresh aerial parts of Apium graveolens var. secalinum at its flowering stage, obtained from three different locations in Egypt, was investigated. The identification of the components of this oil was carried out by means of analytical GC and GC-MS. The main components in the oil are: alpha- and beta-pinene, myrcene, limonene, cis-beta-octimene, gamma-terpinene, cis-allo-octimene, trans-farnesene, humulene, apiol, beta-selinene, senkyunolide and neocnidilide. Data concerning the relative concentrations of the main components of the different celery oil samples are given. The cercaricidal effect of the essential oil has been examined on cercariae, being one of the stages in the life cycles of Schistosoma mansoni, which causes schistosomiasis. The essential oil showed in addition to a cercaricidal effect also a chemotactic effect.

24. HPLC analysis of linear furocoumarins (psoralens) in healthy celery (Apium graveolens).
Beier RC, Ivie GW, Oertli EH, Holt DL.

Four linear furocoumarins (psoralen, bergapten, xanthotoxin, and isopimpinellin) were isolated from three varieties of healthy, commercially grown celery (Apium graveolens). Psoralen has not previously been reported to occur in celery. Combined levels of these photomutagenic and photocarcinogenic furocoumarins measured by normal-phase HPLC did not exceed 1.3 ppm in any of the celery
25. Phosphatidylinositol phosphodiesterase in higher plants.
Irvine RF, Letcher AJ, Dawson RM.

1. The lower regions of the stem of celery (Apium graveolens L.) contain a soluble enzyme that hydrolyses phosphatidylinositol.
2. The lipoidal product of hydrolysis is diacylglycerol, and the water-soluble products are 1:2-cyclic phosphoinositol and phosphoinositol in the approximate proportions of 60% and 40% respectively: this indicates that a phosphodiesterase (phospholipase C-like) activity is cleaving the phosphatidylinositol.
3. The enzyme requires a bivalent cation, Ca2+ being the most effective activator.
4. The enzyme has a pH optimum, depending on conditions of assay, of pH 5.9-6.6 and in this pH range shows no detectable activity against phosphatidylcholine or phosphatidylethanolamine.
5. The activity is stimulated by phosphatidic acid and slightly inhibited (30% at concentrations equimolar with phosphatidylinositol) by phosphatidylcholine.
6. The phosphodiesterase was also detected (but not quantified) in the tips of the flowers in cauliflowers, in outer leaves of onion and in the elongating stem of daffodils.
7. The enzyme's properties are compared with equivalent mammalian enzymes, and its possible role in the catabolism of phosphatidylinositol in higher plants is discussed.

26. The boar-pheromone steroid identified in vegetables.
Claus R, Hoppen HO.

The steroid 5 a-androst-16-en-3-one, known as a boar pheromone, was identified in parsnip (Pastinaca sativa) and celery (Apium graveolens). Concentrations are in the range of 8 ng/g plant.

27. Effect of Koen--Chai or Chinese celery (Apium graveolens) on spermatogenesis.
Visutakul P, Morakotpand P, Watanawanapongs R, Chungcharoen D.

28. Investigations of the content of furocoumarins in Apium graveolens and in Petroselinum sativum.
Innocenti G, Dall'Acqua F, Caporale G.

Garg SK, Saksena SK, Chaudhury RR.

PIP: The petroleum ether, alcoholic and aqueous extracts of Apium graveolens Linn., Butea monosperma Lam. Kuntz., and Gossypium herbaceum Linn., the aqueous extract of Aloe Barbadensis Mill. Syn., and the juice of unripe fruits of Ananas comosus were tested on albino rats by a method which detects any antizygotic, blastocystotoxic, antiimplantation, and early abortifacient activity. The extracts were administered for 1-7 days. The dosages for A. graveolens, B. monosperma, and G. herbaceum were 100 mg/kg. 50 ml of A. comosus juice was administered daily. Dosages of 100, 200, and 500 mg/kg of A. barbadensis were given. With the exception of A. comosus, none of the plants showed any antiimplantation activity. The juice of the unripe fruits of A. comosus demonstrated encouraging antiimplantation activity showing 40% of implants only.
30. A study of central pharmacological activity of alkaloid fraction of Apium graveolens Linn.
Kulshrestha VK, Singh N, Saxena RC, Kohli RP.

31. Some central effects of an essential oil of Apium graveolens (Linn.).
Kohli RP, Dua PR, Shanker K, Saxena RC.