Plantas com efeito anti helmíntico : Ascaris lumbricoides , Giardia , Ameba

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Abobora

Anthelminthic action of Cucurbita pepo seeds.
[Article in Bulgarian]
Farmatsiia (Sofia). 1954;4(6):30-6.
Todorov Vs.

A lectin from the exudate of the fruit of the vegetable marrow (Cucurbita pepo) that has a specificity for beta-1,4-linked N-acetylglucosamine oligosaccharides.
Biochem J. 1979 Oct 1;183(1):133-7. Allen AK.

Lectins are present in the exudate (presumably from the phloem) of the fruits of three species of the Cucurbitaceae, namely vegetable marrow (Cucurbita pepo), melon (Cucumis melo) and cucumber (Cucumis sativus). They are all strongly inhibited in their activities by chitin oligosaccharides, but only weakly by N-acetylglucosamine. Glycopeptides from soya-bean agglutinin and fetuin are also strong inhibitors of Cucurbita pepo lectin, indicating that it interacts with internal N-acetylglucosamine residues. The lectin from Cucurbita pepo fruit was purified by affinity chromatography by using chitin oligosaccharides covalently attached to Sepharose. The lectin is not a glycoprotein, and it consists of a single polypeptide chain of about 20,000 mol.wt. It is a major protein (18% of the total) of the phloem exudate and it is postulated that it may have an anti-parasitic function

Giardía - Ameba

abacate

In vitro effect against Giardia of 14 plant extracts]
[Article in Spanish]
Rev Invest Clin. 1994 Sep-Oct;46(5):343-7.Ponce-Macotela M, Navarro-Alegria I, Martinez-Gordillo MN, Alvarez-Chacon R.

OBJECTIVE. To investigate antigiardiasic activity in plants used in Mexico as antidiarrheics and/or antiparasitics. MATERIALS AND METHODS. Fourteen species were evaluated. The antigiardiasic activity was measured in vitro in a blinded fashion using trophozoites of Giardia duodenalis incubated with plant extracts. The viability of trophozoites was ascertained using MTT (3-[4,5-dimethylthiazol-2-il]-2, 5-diphenyl tetrazolium bromide) which is reduced to MTT-formazan by the activity of live trophozoites. The reduced MTT was extracted with an acidified alcohol (2-propanol with HCI 0.04 M) and measured in a spectrophotometer at 570 nm. Negative (trophozoites without extract) and positive controls (incubated with tinadazol) were included. RESULTS. The scientific and trivial names of the plants are given (trivials in Spanish marked by an asterisk). They had the following trophozoite mortality (mean +/- SD in percent): Justicia spicigera (muicle*) = 91 +/- 0.5; Lipia beriandieri (oregano) = 90 +/- 0.6; Psidium guajava (guava) = 87 +/- 1.0; positive control of tinidazol = 79 +/- 1.9; Punica granutus (granado*) = 78 +/- 1.3; Magnifera indica (mango) = 77 +/- 1.0; Plantago major (lante*) = 76 +/- 1.2; Cupressus semperbirens (cipres) = 73 +/- 1.2; Castella tormentosa (chaparro amargoso*) = 70 +/- 0.7; Hematoxilon campechanum (palo de Campeche*) = 67 +/- 1.2. Without or with a low mean activity were Prosopis juliflora (mesquite*) and Rizophora mangle (mangle*) with 0%, Oriza sativa (rice) with 5%, Capsicum annum (pimiento*) with 21% and Persea americana (avocado) with 23%. There were no associations of the antigiardiasic effect with concentration or osmolality of the extracts. CONCLUSIONS. A clear in vitro antigiardiasic effects was seen in nine species. Three of them were superior to tinidazol which is a drug of common use in the treatment of giardiasis.

Alho

The microaerophilic flagellate Giardia intestinalis: Allium sativum (garlic) is an effective antigiardial.

Microbiology;146 Pt 12:3119-27, 2000 Dec. Harris JC; Plummer S; Turner MP; Lloyd D

Resumo: Whole garlic (Allium sativum L.) extract and some of its components were assayed for antigiardial activity. Whole garlic extract gave an IC(50) at 24 h of 0.3 mg ml(-1). Most of the components assayed were inhibitory to the organism, especially allyl alcohol and allyl mercaptan, with IC(50) values of 7 microg ml(-1) and 37 microg ml(-1) respectively. Studies with calcofluor white indicated that whole garlic and allyl alcohol collapse the transmembrane electrochemical membrane potential (Deltapsi) of the organism, as indicated by uptake of the fluorochrome. Electron microscopy allowed the morphological changes that occur with garlic inhibition to be recorded. Both the surface topography and internal architecture of the organism changed during incubation with the biocides. Both whole garlic and allyl alcohol resulted in fragmentation of the disc and an overexpression of disc microribbons, internalization of flagella, vacuole formation and an increase in distended vesicles. Allyl mercaptan, however, only gave an increase in distended vesicles, suggesting that this biocide has a different mode of action.

Antiparasitic activity of diallyl trisulfide (Dasuansu) on human and animal pathogenic protozoa (Trypanosoma sp., Entamoeba histolytica and Giardia lamblia) in vitro. Ann Soc Belg Med Trop;74(1):51-9, 1994 Mar. Lun ZR; Burri C; Menzinger M; Kaminsky R

Resumo: Garlic (Allium sativum L.) and one of its major components, allicin, have been known to have antibacterial and antifungal activity for a long time. Diallyl trisulfide is a chemically stable final transformation product of allicin which was synthesized in 1981 in China and used for treatment of bacterial, fungal and parasitic infections in man. The activity of diallyl trisulfide was investigated in several important protozoan parasites in vitro. The IC50 (concentration which inhibits metabolism or growth of parasites by 50%) for Trypanosoma brucei brucei, T.b. rhodesiense, T.b. gambiense, T. evansi, T. congolense and T. equiperdum was in the range of 0.8-5.5 micrograms/ml. IC50 values were 59 micrograms/ml for Entamoeba histolytica and 14 micrograms/ml for Giardia lamblia. The

cytotoxicity of the compound was evaluated on two fibroblast cell lines (MASEF, Mastomys natalensis embryo fibroblast and HEFL-12, human embryo fibroblast) in vitro. The maximum tolerated concentration for both cell lines was 25 micrograms/ml. The results indicate that the compound has potential to be used for treatment of several human and animal parasitic diseases.

Dalbergia

Antigiardial activity of isoflavones from Dalbergia frutescens bark.

[So] Source: J Nat Prod;63(10):1414-6, 2000 Oct. Khan IA; Avery MA; Burandt CL; Goins DK; Mikell JR; Nash TE; Azadegan A; Walker LA

Resumo: Several isoflavones [formononetin (1), castanin (5), odoratin (6), glycitein (7), pseudobaptogenin (8), fujikinetin (9), and cuneatin (10)] were isolated from Dalbergia frutescens, and their antiprotozoal activities were determined against Giardia intestinalis. Among these compounds, formononetin (1) was the most potent antigiardial agent, with an IC(50) value of 30 ng/mL (approximately 0.1 microM), as compared to the value for metronidazole, the current drug of choice, of 100 ng/mL (approximately 0.6 microM). Three isoflavones closely related to formononetin [daidzein (2), biochanin A (3) and genistein (4)] were also evaluated, but they were at least 100 times less active than 1. Formononetin (1) may thus be an interesting lead for development of new antigiardial agents or as a probe for a new mechanistic target.

Helianthemum glomeratum

Antiprotozoal properties of Helianthemum glomeratum.

Phytother Res;13(2):102-5, 1999 Mar. Meckes M; Calzada F; Tapia-Contreras A; Cedillo-Rivera R

Resumo: Structure characterization and biological evaluation of the compounds isolated from Helianthemum glomeratum, particularly that of the polyphenols, has been the aim of a series of studies carried out to define the further potential use of this plant in the treatment of infectious diarrhoea in children. The flavan-3-ols, (-)-epigallocatechin and (-)-epigallocatechin gallate, isolated from Helianthemum glomeratum roots were tested for their antiamoebic and antigiardial effects in vitro. Compared with the activity determined with the leaf and the root methanol extracts, the effect of (-)-epigallocatechin against Entamoeba histolytica was of a similar potency, nevertheless, it also suppressed the growth of Giardia lamblia in axenic cultures, a parasite that proved to be resistant to the crude extracts. It might be assumed that determined biological properties are due to the presence of (-)-epigallocatechin in the plant, although the flavonoids, kaempferol and tiliroside isolated from the leaves, could account for the antiprotozoal properties of this herbal resource, used in Mayan traditional medicine for the treatment of bloody diarrhoea.

Piper longum

Antigiardial and immunostimulatory effect of Piper longum on giardiasis due to Giardia lamblia.

Phytother Res;13(7):561-5, 1999 Nov. Tripathi DM; Gupta N; Lakshmi V; Saxena KC; Agrawal AK

Resumo: Piper longum fruit, used in traditional remedies as well as in the Ayurvedic system of medicine against intestinal disorders, was tested for its efficacy against experimental infection of Giardia lamblia in mice. On in vitro test, an aqueous extract of P. longum fruit powder (PF) at 250 microg/mL and its ethanol extract at 125 microg/mL showed 100% giardicidal activity. A low order activity was found in the n-butanol extract. Further fractionation in hexane and chloroform resulted in a total loss of activity. The survival of-trophozoites in mice at 900 mg/kg body weight was 11.12 in PF, 8. 54 in aqueous extract, 5.81 in ethanol extract. The antigiardial activity of PF in hexane, chloroform and n-butanol soluble fractions was comparable to the drug-untreated control (47.63). Piper longum possessed a demonstrable immunostimulatory activity, both specific and nonspecific, as evident from the standard test parameters such as haemagglutination titre (HA), plaque forming cell (PFC) counts, macrophage migration index (MMI) and phagocytic index (PI). A maximum effect was found at 225 mg/kg body weight in mice. The effect was marginally reduced at higher doses of 450 and 900 mg/kg or the lower dose of 112.5 mg/kg.

Gerânio

Geranins C and D, additional new antiprotozoal A-type proanthocyanidins from Geranium niveum.

Planta Med;67(7):677-80, 2001 Oct. Calzada F; Cedillo-Rivera R; Bye R; Mata R

Resumo: Two new additional A-type proanthocyanidins have been isolated from Geranium niveum. Their structures were determined by spectroscopic, chemical and chiroptical methods as epi-afzelechin-(4beta-->8,2beta-->O-->7)-gallocatechin (1) and epi-afzelechin-(4beta-->8,2beta-->O-->7)-afzelechin-(4beta-->8,2beta-->O-->7)-afzelechin (2). Proanthocyanidins 1 and 2 were given the trivial names of geranins C and D, respectively. Compound 2 showed moderate antiprotozoal activity against Entamoeba histolytica and Giardia lamblia, whereas 1 exhibited weak activity toward E. histolytica.

Conyaza filaginoides

Antiprotozoal activity of the constituents of Conyza filaginoides.

J Nat Prod;64(5):671-3, 2001 May. Calzada F; Cedillo-Rivera R; Mata R

Resumo: Bioassay-guided fractionation of the antiprotozoal extract of Conyza filaginoides led to the isolation of three new flavonol caffeoyl glycosides, namely, kaempferol 3-O-(6' '-O-E-caffeoyl)-beta-D-galactopyranoside (1), isorhamnetin 3-O-(6' '-O-E-caffeoyl)-beta-D-galactopyranoside (2), and quercetin 3-O-(6' '-O-E-caffeoyl)-beta-D-glucopyranoside (3). In addition, seven known compounds, erythrodiol (4), beta-caryophyllene-4,5-alpha-oxide (5), astragalin (6), isoquercitrin (7), nicotiflorin (8), narcissin (9), and rutin (10), were obtained. The structures of the new isolates were elucidated by spectroscopic and chemical methods. Compounds were also assessed for antiamoebic and antigiardial activities, but none was significantly active compared to the standard drugs evaluated.

Zanthoxylum liebmannianun.

Amoebicidal and giardicidal compounds from the leaves of Zanthoxylum liebmannianun.

Fitoterapia;72(3):295-7, 2001 Mar. Arrieta J; Reyes B; Calzada F; Cedillo-Rivera R; Navarrete A

Resumo: The crude ethanol extract from the leaves of Zanthoxylum liebmannianum exhibited inhibitory effect on the reproduction of trophozoites of Entamoeba histolytica (IC(50)=3.48 microg/ml) and Giardia lamblia (IC(50)=58.00 microg/ml). From this extract, asarinin, hyperin, beta-sitosterol, and beta-sitosterol glucoside were isolated. Among them, asarinin was the most active with IC(50) values of 19.86 microg/ml for E. histolytica and 35.45 microg/ml for G. lamblia. The remaining compounds showed moderate activity against both parasites.

Plantas da Africa e Giardia

Anti-giardial activity of gastrointestinal remedies of the Luo of east Africa.

J Ethnopharmacol;46(1):17-23, 1995 Apr. Johns T; Faubert GM; Kokwaro JO; Mahunnah RL; Kimanani EK

Resumo: Activity in an in vitro assay with Giardia lamblia provided a test of the validity of a quantitative methodology used in an ethnobotanical survey of the Luo people of the Lake Victoria basin of Kenya and Tanzania. Forty-five taxa of remedies for gastrointestinal problems were reported by four or more independent informants and a log-linear model was used to calculate a statistical measure of informant consensus. Methanolic extracts of 21 of 36 taxa assayed were lethal or inhibited growth of Giardia trophozoites at 1000 ppm; 7 species were lethal at 500 ppm. Non-cathartic species are more likely to be active than cathartics. Lethal species of non-cathartics are reported by informants more frequently than non-lethal species although the lack of statistical significance did not provide satisfactory support for the validity of the quantitative methodology as a predictor of efficacious remedies.

Contribution to the ethnobotanical, phytochemical and pharmacological studies of traditionally used medicinal plants in the treatment of dysentery and diarrhoea in Lomela area, Democratic Republic of Congo (DRC).

J Ethnopharmacol;71(3):411-23, 2000 Aug. Longanga Otshudi A; Vercruysse A; Foriers A

Resumo: In order to collect ethnobotanical information about antidiarrhoeal plants, we performed inquiries among traditional healers, community leaders, and native people of Lomela villages in Congo. Six medicinal plants widely used in this region were designated as having antidysenteric and antidiarrhoeal properties. These six medicinal plants were screened for groups of phytochemical compounds with antibacterial and antiamoebic activities. They were found to contain tannins, alkaloids, saponins, flavonoids, sterols and/or triterpenes and reducing sugars. Of the six tested plants, three showed prominent antibacterial activity whereas two acted against Entamoeba histolytica. The usefulness of the phytochemical bases and biological activities of these plants as potential source of antidiarrhoeal remedies is discussed.

Plantas da Tailândia e Giardia

The in vitro anti-giardial activity of extracts from plants that are used for self-medication by AIDS patients in southern Thailand.

[So] Source: Parasitol Res;95(1):17-21, 2005 Jan. Sawangjaroen N; Subhadhirasakul S; Phongpaichit S; Siripanth C; Jamjaroen K; Sawangjaroen K

Resumo: This study evaluated the anti-giardial activity of chloroform, methanol and water extracts of 12 medicinal plants (39 extracts), commonly used as self medication by AIDS patients in southern Thailand. The plant extracts and a standard drug, metronidazole, were incubated with 2x10(5) trophozoites of Giardia intestinalis per millilitre of growth medium in 96-well tissue culture plates under anaerobic conditions for 24 h. The cultures were examined with an inverted microscope and the minimum inhibitory concentration and the IC50 value for each extract was determined. The chloroform extracts from Alpinia galanga, Boesenbergia pandurata, Eclipta prostrata, Piper betle, Piper chaba, Zingiber zerumbet, and the methanol extracts from B. pandurata and E. prostrata were classified as [quot]active[quot], i.e. with an IC50 of <100 microg/ml, whereas the chloroform extract from Murraya paniculata was classified as being [quot]moderately active[quot]. This study shows that extracts from some medicinal plants have potential for use as therapeutic agents against G. intestinalis infections.

Ascaris lumbricoides

Aipo

Anthelminthic efficacy of traditional herbs on Ascaris lumbricoides.
J Egypt Soc Parasitol. 2002 Dec;32(3):893-900.
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 abutnsifolla, Albizzia lebbek, Acacia auriculoformis 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 antihelmintics against Ascaris lumbricoides. Extracts of the other tested herbs were less or no value.

Flemingia vestita

In vitro anthelmintic activity of root-tuber extract of Flemingia vestita, an indigenous plant in Shillong, India.

Parasitol Res;83(5):492-8, 1997. Tandon V; Pal P; Roy B; Rao HS; Reddy KS

Resumo: The in vitro activity of root-tuber-peel extract of Flemingia vestita, an indigenous plant consumed by the natives in Northeast India, was tested against helminth parasites. Live parasites (nematode: Ascaris suum from pigs, A. lumbricoides from humans, Ascaridia galli and Heterakis gallinarum from domestic fowl; cestode: Raillietina echinobothrida from domestic fowl; trematode: Paramphistomum sp. from cattle) were collected in 0.9 % physiological buffered saline (PBS) and maintained at 37 +/- 1 degrees C. In vitro treatment of the parasites with the crude extract (50 mg/ml) in PBS revealed complete immobilization of the trematode and cestode in about 43 and 20 min, respectively. However, the cuticle-covered nematodes did not show any change in physical activity and remained viable even after a long period of exposure to the extract. Exposure of R. echinobothrida to genistein (0.5 mg/ml), an active principle isolated from the root-tuber peel, caused spontaneous loss of movement (paralysis) in 4.5 h, which was slower than the time required for praziquantel, the reference flukicide and cestodicide. The treated parasites showed structural alteration in their tegumental

architecture. This study suggests the vermifugal activity of this plant extract against trematodes and cestodes.