Literature Search of Research and Traditional Herbal Background related to Lung Function of Herbs in Vital Respiratory Formula D-16

Ophiopogon japonicus **(LILYTURF ROOT)**

Life Sci. 2004 Mar 26;74(19):2413-22.

Ophiopogon root (Radix Ophiopogonis) prevents ultra-structural damage by SO2 in an epithelial injury model for studies of mucociliary transport.

O'Brien DW, Morris MI, Lee MS, Tai S, King M.

Source

Heritage Medical Research Centre, Room 173, Pulmonary Research Group, University of Alberta, Edmonton, Alberta, Canada T6G 2S2.

Abstract

We studied the action of the herb, Ophiopogon root (OR) in a epithelial injury model, hypothesizing that it may have beneficial effects on mucociliary transport following injury to the palate induced by sodium metabisulphite (MB) which releases SO(2) on contact with water. OR (extract from 1g of root/ml)-incubated palates and non-incubated palates were compared to assess the effect of MB on mucociliary clearance on the bull frog palate. MB 10(-1) M, acutely increased mucociliary clearance time (MCT) by 254.5 +/- 57.3% in untreated and 243.3 +/- 98.5% in OR-incubated palates, (over all significance assessed by one-way ANOVA, $F = 12.82$, $p < 0.001$, $df = 8,54$ for MB and $F = 10.56$, $p < 0.001$, $df = 8,54$ for OR). MCT returned to normal during recovery in OR-treated palates following MB. In untreated palates, MCT did not return to control values during a similar recovery period. ANOVA comparing MCTs in the recovery period in untreated vs OR-treated palates was significantly different ($F = 2.92$, $p < 0.03$, $df = 5,36$). SEM images of epithelial tissue, analyzed by morphometry, showed a 25 +/- 12% loss of ciliated cells in untreated palates and little or no damage to cilia in OR-treated palates. Intact groups of ciliated cells were found in SEM micrographs of mucus from MB-treated palates. We conclude that the loss of cilia or ciliated cells prevented full recovery of MCT after MB in untreated palates. In OR-incubated palates, mucociliary transport was completely restored within 20 min after topical application of MB, possibly through a protective action on the extra-cellular matrix.

PMID:

14998718

[PubMed - indexed for MEDLINE]

Pharmaceutical Name

Radix Ophiopogonis

Botanical Name

1. Ophiopogon japonicus (Thunb.) Ker-Gawl.; 2. Liriope spicata

Common Name

Ophiopogon root, Lilyturf root

Source of Earliest Record

Shennong Bencao Jing

Part Used & Method for Pharmaceutical Preparations

The tuberous roots are dug in summer. After the fibrous roots have been removed, the roots are dried in the sun.

Properties & Taste

Sweet, slightly bitter and slightly cold

Meridians

Lung, heart and stomach

Functions

1**. To nourish the yin and moisten the lungs;** 2. To strengthen the stomach and promote the production of body fluids; 3. To clear heat in the heart and relieve irritability

Indications & Combinations

1. **Dry and heat in the lungs due to deficiency of yin manifested as cough with scanty and sticky sputum or cough with bloody sputum.** Ophiopogon root (Maidong) is used with Glehnia root (Shashen), Asparagus root (Tianmendong), Tendrilled fritillary bulb (Chuanbeimu) and Fresh rehmannia root (Shengdihuang). 2. Deficient yin of the stomach manifested as dry tongue and thirst. Ophiopogon root (Maidong) is used with Fragrant solomonseal rhizome (Yuzhu), Glehnia root (Shashen) and Fresh rehmannia root (Shengdihuang). 3. Irritability and insomnia; (a) nutritive (ying) system invaded by pathogenic heat. Ophiopogon root (Maidong) is used with Fresh rehmannia root (Shengdihuang), Bamboo leaf (Zhuye) and Coptis root (Huanglian) in the formula Qingying Tang; (b) heart yin deficiency with internal heat causing insomnia. Ophiopogon root (Maidong) is used with Fresh rehmannia root (Shengdihuang) and Wild jujube seed (Suanzaoren) in the formula Tianwang Buxin Dan. 4. Constipation caused by dryness in the intestines. Ophiopogon root (Maidong) is used with Fresh rehmannia root (Shengdihuang) and Scrophularia (Xuanshen) in the formula Zengye Tang.

Dosage

6-15 g

Cautions & Contraindications

This herb is contraindicated in cases with cough due to wind-cold type of common cold, with presence of phlegm fluid and turbid dampness, with diarrhea due to deficiency, and cold in the spleen and stomach.

http://www.tcmbasics.com/materiamedica/radix_ophiopogonis.htm

Schizandra chinensis **WU WEI TZI)**

Phytomedicine. 2009 Sep;16(9):814-22. Epub 2009 Mar 25.

Inhibitory effects of Schizandrae Fructus on eotaxin secretion in A549 human epithelial cells and eosinophil migration.

Oh BG, Lee H, Kim Y, Shin M, Hong M, Jung SK, Kim J, Bae H.

Source

Department of Physiology, College of Oriental Medicine, Kyung Hee University, Seoul, Republic of Korea.

Abstract

Eosinophilia have been implicated in a broad range of diseases, most notably allergic conditions (e.g. asthma, rhinitis and atopic dermatitis) and inflammatory diseases. These diseases are characterized by an accumulation of eosinophils in the affected tissue. Defining the mechanisms that control the recruitment of eosinophil is fundamental to understanding how these diseases progress and identifying a novel target for drug therapy. **Accordingly, this study was conducted to evaluate the regulatory effect of Schizandrae Fructus (SF) on the expression of eotaxin, an eosinophil-specific chemokine released in respiratory epithelium following allergic stimulation, as well as its effects on eosinophil migration. To accomplish this, human epithelial lung cells** (A549 cell) were stimulated with a combination of TNF-alpha (100ng/ml) and IL-4 (100ng/ml) for 24h. The cells were then restimulated with TNF-alpha (100ng/ml) and IL-1beta (10ng/ml) to induce the expression of chemokines and adhesion molecules involved in eosinophil chemotaxis for another 24h. Next, the samples were treated with various concentrations of Schizandrae Fructus (SF) (1, 10, 100, 1000microg/ml) or one of the major constituents of SF, schizandrin (0.1, 1, 10, 100microg/ml), after which following inhibition effect assay was performed triplicates in three independence. The levels of eotaxin in secreted proteins were suppressed significantly by SF (100 and 1000microg/ml, $p<0.01$) and schizandrin (10 and 100microg/ml, $p<0.01$). In addition, SF (1, 10, 100 and 1000microg/ml) decreased mRNA expression levels in A549 cells significantly ($p<0.01$). Eosinophil recruitment to **lung epithelial cells was also reduced by SF**, which indicates that eotaxin plays a role in eosinophil recruitment. Furthermore, treatment with SF suppressed the expression of another chemokine, IL-8 (0.1 and 1microg/ml SF, $p<0.01$), as well as intercellular adhesion molecule-1 (10 and 100microg/ml SF, $p<0.01$) and vascular cell adhesion molecule-1 (0.1 and 1microg/ml SF, $p<0.05$), which are all related to eosinophil migration. **Taken together, these findings indicate that SF may be a desirable medicinal plant for the treatment of allergic diseases.**

PMID:

19324539
[PubMed - indexed for MEDLINE]
Related citations

Pharmaceutical Name: Fructus Schisandrae

Botanical Name: 1. Schisandra chinensis (Turcz.) Baill.; 2. Schizandra sphenanthera Rehd. et Wils.

Common Name: Schisandra fruit

Source of Earliest Record: Shennong Bencao Jing

Part Used & Method for Pharmaceutical Preparations: The ripe fruit is gathered in autumn and dried in the sun.

Properties & Taste: Sour and warm

Meridians: **Lung,** kidney and heart

Functions: 1. To astringe the lungs and nourish the kidneys; 2. To promote the production of body fluids and astringe sweat; 3. To restrain the essence and stop diarrhea; 4. To calm the heart and soothe the mind

Indications & Combinations :

- **Chronic cough and asthma due to rebellion of lung qi caused by deficiency of the lungs and kidneys manifested as cough with scanty sputum and asthma aggravated by slight exertion.** Schisandra fruit (Wuweizi) is used with Dogwood fruit (Shanzhuyu), Prepared rehmannia root (Shudihuang) and Ophiopogon root (Maidong) in the formula Baxian Changshou Wan.
- Deficiency of qi and body fluids manifested as spontaneous sweating, night sweating, thirst, palpitations, shortness of breath and deficient and forceless pulse. Schisandra fruit (Wuweizi) is used with Ginseng (Renshen) and Ophiopogon root (Maidong) in the formula Shengmai San.
- Diabetes manifested as thirst, preference for excessive fluid intake, shortness of breath, lassitude and deficient and forceless pulse. Schisandra fruit (Wuweizi) is used with Astragalus root (Huangqi), Fresh rehmannia root (Shengdihuang), Ophiopogon root (Maidong) and Trichosanthes root (Tianhuafen) in the formula Huangqi Tang.
- Seminal emissions and nocturnal emissions caused by deficiency of the kidneys. Schisandra fruit (Wuweizi) is used with Dragon's bone (Longgu) and Mantis egg case (Sangpiaoxiao).
- Chronic diarrhea caused by deficiency of the spleen and kidneys. Schisandra fruit (Wuweizi) is used with Nutmeg (Roudoukou) and Evodia fruit (Wuzhuyu) in the formula Sishen Wan.
- Deficient yin and blood of the heart and kidneys manifested as palpitations, irritability, insomnia, dreamful sleep and forgetfulness. Schisandra fruit (Wuweizi) is used with Fresh rehmannia root (Shengdihuang), Ophiopogon root (Maidong) and Wild jujube seed (Suanzaoren) in the formula Tianwang Buxin Dan.

Dosage: 2-6 g

Cautions & Contraindications: This herb is contraindicated in the early stage of cough or rubella and in excessive internal heat with unrelieved exterior syndrome.

***Astragalus membranaceus* (HUANG QI)**

Nan Fang Yi Ke Da Xue Xue Bao. 2010 Aug;30(8):1864-7.

[Morphological investigation of the protective effect of astragaloside preconditioning against ischemia-reperfusion lung injury in rats].

[Article in Chinese]

Xiong P, Jiang LZ, Liao XQ.

Source

Department of Pharmaceutical Engineering, South China Agricultural University, Guangdong Second People's Hospital, Guangzhou 510642, China.

Abstract

OBJECTIVE:

To study the protective mechanisms of the astragaloside against ischemia-reperfusion **lung** injury in rats.

METHODS:

Ischemia-reperfusion **lung** injury was induced in SD rats. **Astragalus** armour glucoside was dissolved in 1% of sodium carboxymethyl cellulose at different concentrations (8, 6, and 3 mg/ml) was intragastrically administered in the rats at the dose of 1 ml/100 g. Cellular and subcellular structural changes in the **lung** tissue were observed at the end of the experiment using optical and transmission electron microscope, with the wet/dry ratio of the **lung** tissue and myeloperoxidase (MPO) activity measured.

RESULTS:

The wet/dry ratio and myeloperoxidase activity in the **lung** tissue were significantly higher in the model group than in the sham-operated group ($P<0.05$), and were significantly lowered by the treatment with **astragalus** armour glucoside at different doses ($P<0.01$ or 0.05), and the effect was especially obvious in rats receiving a moderate dose. Pulmonary capillary expansion, erythrocyte leakage and exudate in the alveolar space with obvious pathological changes in the type I and II epithelial cells were observed in model group. Pulmonary capillary expansion was reduced in rats treated with high, medium and low dose of **Astragalus** armour glucoside, and the medium dose group showed the most obvious effect, in which no edema fluid in the alveolar space or erythrocyte leakage was found with also reduced type II **lung** epithelial cell degranulation.

CONCLUSION:

Astragaloside has obvious antioxidant effect in rats with ischemia-reperfusion lung injury, and a medium dose produces the best effect.

PMID:
20813687
[PubMed - in process]
Free full text
Related citations

Publication Types

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2.
Can J Physiol Pharmacol. 2008 Jul;86(7):449-57.

Inhibitory effects of astragaloside IV on ovalbumin-induced chronic experimental asthma.

Du Q, Chen Z, Zhou LF, Zhang Q, Huang M, Yin KS.

Source

Department of Respiratory Medicine, The First Affiliated Hospital, Nanjing Medical University, 300 Guangzhou Road, Nanjing 210029, China.

Abstract

Astragaloside IV, a new cycloartane-type triterpene glycoside extract of **Astragalus** membranaceus Bunge, has been identified for its potent immunoregulatory, antiinflammatory, and antifibrotic actions. Here we investigated whether astragaloside IV could suppress the progression of airway inflammation, airway hyperresponsiveness, and airway remodeling in a murine model of chronic asthma. BALB/c mice sensitized to ovalbumin (OVA) were chronically challenged with aerosolized OVA for 8 weeks. Astragaloside IV was orally administered at a dose of 50 mg x kg-1 x day-1 during each OVA challenge. Astragaloside IV treatment resulted in significant reduction of eosinophilic airway inflammation, airway hyperresponsiveness, interleukin (IL)-4 and IL-13 levels in bronchoalveolar lavage fluid, and total immunoglobulin E levels in serum. **Furthermore, astragaloside IV treatment markedly inhibited airway remodeling, including subepithelial fibrosis, smooth muscle hypertrophy, and goblet cell hyperplasia. In addition, the expression of transforming growth factor-beta1 in the lung was also reduced by astragaloside IV. These data indicate that astragaloside IV may mitigate the development of characteristic features in chronic experimental asthma**.

PMID:

18641694
[PubMed - indexed for MEDLINE]

Related citations

NRC full text article Research Press

Publication Types, MeSH Terms, Substances

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3.

J Ethnopharmacol. 2008 Mar 5;116(2):363-9. Epub 2007 Dec 8.

Astragalus Membranaceus prevents airway hyperreactivity in mice related to Th2 response inhibition.

Shen HH, Wang K, Li W, Ying YH, Gao GX, Li XB, Huang HQ.

Source

Department of Respiratory Medicine, The Second Affiliated Hospital, Medical School of Zhejiang University, 88# Jiefang Road, Hangzhou 310009, China.
hh_shen@yahoo.com.cn

Abstract

AIM OF THE STUDY:

Asthma is recognized as a common pulmonary disease throughout the world. To date, there has been a growing interest in herbal products in Traditional Chinese Medicine, which is considered to be effective to treat asthma. **A Chinese herb Astragalus Membranaceus (AM) was found useful in treating allergic diseases. The purpose of this study is to determine whether this herbal injection could suppress allergic-induced AHR and mucus hypersecretion in allergic mice.**

MATERIALS AND METHODS:

A mouse model of chronic asthma was used to investigate AM injection on the airway lesions in compared with glucocorticoids. The study was conducted on mice sensitized and challenged with ovalbumin and the whole body plethsmography was performed to assess AHR. The bronchoalveolar lavage (BAL), histopathology were examined.

RESULTS:

We found 28-day AM administration significantly decreased inflammatory infiltration and mucus secretion in the **lung** tissues of allergic mice. 28-day AM administration enhanced Ova-induced decreased IFN-gamma, and the Ova-induced elevations of IL-5 and IL-13 in BALF were prevented by 28-day injection. We also showed 28-day AM injection markedly suppressed increased AHR in allergic mice.

CONCLUSIONS:

Our results indicate Astragalus Membranaceus has a potential role in treating allergic asthma.

PMID:
18226482
[PubMed - indexed for MEDLINE]
Related citations
ELSEVIER FULL-TEXT ARTICLE

MeSH Terms, Substances

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4.
Zhongguo Zhong Yao Za Zhi. 1991 Jan;16(1):49-50, 65.

[Effect of radix Astragalus on the contents of collagen in the aorta and lung of old rats].

[Article in Chinese]
Xu P, Jin G, Shen X.

Source

Shanghai College of Traditional Chinese Medicine.

Abstract

The result of experiments shows that the collagen contents in the aorta and lung of old rats are higher than in those of young rats, whereas the contents in the old rats given Radix Astragalus appear lower than those in the control group, close to those in young rats.

PMID:
2069705
[PubMed - indexed for MEDLINE]
Related citations

Pharmaceutical Name

Radix Astragali

Botanical Name

1. Astragalus membranaceus (Fisch.) Bge.; 2. Astragalus membranaceus Bge. var. mongolicus (Bge.) Hsiao

Common Name

Astragalus root

Source of Earliest Record

Shennong Bencao Jing

Part Used & Method for Pharmaceutical Preparations

The four year old roots are dug in spring or autumn, but autumn ones are of better quality. After the fibrous roots are removed, the roots are dried in the sun, soaked again in water and cut into slices.

Properties & Taste

Sweet and slightly warm

Meridians

Spleen and lung

Functions

1. To replenish qi and cause yang to ascend; 2. To benefit qi and stabilize the exterior; 3. To release toxins and promote healing; 4. To promote water metabolism and reduce edema

Indications & Combinations

1. Deficient qi of the spleen and lungs manifested as poor appetite, loose stool, shortness of breath and lassitude. Astragalus root (Huangqi) is used with Ginseng (Renshen) and White atractylodes (Baizhu). 2. Deficient qi and weakened yang manifested as chills and sweating. Astragalus root (Huangqi) is used with Prepared aconite root (Fuzi). 3. Qi sinking in the middle jiao due to weakness of the spleen and stomach manifested as prolapsed anus, prolapsed uterus and gastroptosis. Astragalus root (Huangqi) is used with Ginseng (Renshen), White atractylodes (Baizhu) and Cimicifuga rhizome (Shengma) in the formula Buzhong Yiqi Tang. 4. Failure of deficient qi of the spleen in controlling blood manifested as blood in the stool and uterine bleeding. Astragalus root (Huangqi) is used with Ginseng (Renshen) and Chinese angelica root (Danggui) in the formula Guipi Tang. 5. Deficiency of qi and blood manifested as palpitations, anxiety, insomnia and forgetfulness. Astragalus root (Huangqi) is used with Longan aril (Longyanrou), Wild jujube seed (Suanzaoren) and Polygala root (Yuanzhi) in the formula Guipi Tang. 6. Spontaneous sweating due to exterior deficiency. Astragalus root (Huangqi) is used with Oyster shell (Muli), Light wheat (Fuxiaomai) and Ephedra root (Mahuanggen) in the formula Muli San. 7. Night sweating due to yin deficiency and excessive fire. Astragalus root (Huangqi) is used with Fresh rehmannia root (Shengdihuang) and Phellodendron bark (Huangbai) in the formula Danggui Liuhuang Tang. 8. Deficiency of the spleen leading to dysfunction in transportation and transformation of water manifested as edema and scanty urine. Astragalus root (Huangqi) is used with Tetrandra root (Fangji) and White atractylodes (Baizhu) in the formula Fangji Huangqi Tang. 9. Boils and ulcers due to qi and blood deficiency manifested as sores that have formed pus but have not drained or healed well. Astragalus root (Huangqi) is used with Cinnamon bark (Rougui), Chinese angelica root (Danggui) and Ginseng (Renshen). 10. Retardation of circulation of the blood due to deficiency of qi and blood manifested as hemiplegia. Astragalus root (Huangqi) is used with Chinese angelica root (Danggui), Chuanxiong rhizome (Chuanxiong) and Earthworm (Dilong) in the formula Buyang Huanwu Tang.

Dosage

10-15 g (The maximum dosage can be 30-60 g.)

Cautions & Contraindications

This herb is contraindicated during yin deficiency and hyperactivity of yang, qi stagnation and accumulation of dampness, retention of food, exterior excess syndrome, and the early stage of carbuncles and furuncles.

***Panax ginseng* (JEN SHEN)**

J Ethnopharmacol. 2011 Jun 14;136(1):230-5. Epub 2011 Apr 28.

Panax ginseng ameliorates airway inflammation in an ovalbumin-sensitized mouse allergic asthma model.

Kim DY, Yang WM.

Source

Department of Pharmacology, Sungkyunkwan University School of Medicine, 300 Chunchun-dong, Jangan-ku, Suwon 440-746, Republic of Korea.

Abstract

ETHNOPHARMACOLOGICAL RELEVANCE:

Panax ginseng (PG) is a medicinal herb that has been used to treat various immune diseases including asthma and COPD. In this study, we investigated the inhibitory mechanism of PG on asthma parameters in mice.

MATERIALS AND METHODS:

BALB/c mice were sensitized with 20μg/200μl OVA adsorbed on 1.0mg/50μl aluminum hydroxide gel adjuvant by i.p. injection on days 0 and 14. Mice were then challenged with 5% OVA in PBS to the nose for 30min once a day for 3 days, from day 20 until day 22, using a nebulizer. PG (20mg/kg) or vehicle was administrated by i.p. injection once a day 10min before every OVA challenge for 3 days. **The recruitment of inflammatory cells into bronchoalveolar lavage fluid or lung tissues was measured. The expression of EMBP, Muc5ac, CD40, and CD40 ligand (CD40L) in lung tissues was investigated. In addition, the cytokines and mitogen activated protein (MAP) kinases were measured by RT-PCR and Western blot.**

RESULTS AND CONCLUSIONS:

PG restored the expression of EMBP, Muc5ac, CD40, and CD40L, as well as the mRNA and protein levels of interleukin (IL)-1β, IL-4, IL-5, and tumor necrosis factor (TNF)-α. In addition, **PG inhibited the numbers of goblet cells and further small G proteins and MAP kinases in bronchoalveolar lavage cells and lung tissues increased in ovalbumin-induced allergic asthma in mice. These results suggest that PG may be used as a therapeutic agent in asthma, based on reductions of various allergic responses.**

PMID:
21549818
[PubMed - in process]
Related citations
ELSEVIER FULL-TEXT ARTICLE

- 2.

Int Arch Allergy Immunol. 2009;150(1):32-42. Epub 2009 Apr 2.

Suppressive effects of ginsan on the development of allergic reaction in murine asthmatic model.

Lim YJ, Na HS, Yun YS, Choi IS, Oh JS, Rhee JH, Cho BH, Lee HC.

Source

Department of Microbiology, Chonnam National University Medical School, Brain Korea 21 Project, Center for Biomedical Human Resources at Chonnam National University, Gwangju 501-746, Republic of Korea.

Abstract

BACKGROUND:

Asthma is a major health problem worldwide, and the morbidity and mortality caused by asthma are on the rise. Corticosteroid therapies for asthma treatment frequently induce many side effects. Therefore, the development of new medicines that have both high efficacy and fewer side effects has been a scientific challenge. **Here we tested the effect of ginsan, a polysaccharide derived from Panax ginseng, against allergic reaction in an ovalbumin (OVA)-induced murine asthmatic model in comparison with dexamethasone, and investigated its underlying mechanism.**

METHODS:

To induce murine asthma, mice were sensitized and challenged with OVA. Ginsan or dexamethasone was administered by injection 3 times a week. **Airway hyperresponsiveness, airway inflammation and lung pathology were assessed in order to evaluate the effect of ginsan against asthma.**

RESULTS:

Ginsan treatment reduced airway hyperresponsiveness, remodeling and eosinophilia. These effects of ginsan were equivalent to those of dexamethasone. Ginsan treatment decreased the IL-5 level in the supernatant of cultured splenocytes, while IFN-gamma and serum IgE were not altered. **To elucidate the mechanism of ginsan, expression of inflammation-related genes were screened. Interestingly, ginsan treatment**

upregulated cyclooxygenase (COX)-1 and COX-2 mRNA, and expression of their proteins in the lung were also increased. PGE(2) in the bronchoalveolar lavage fluid was also increased by the ginsan treatment. Lastly, ginsan inhibited the allergic reaction aggravated by COX inhibitor (indomethacin).

CONCLUSION:

Ginsan has anti-asthmatic effects, which seem to be partially mediated by enhancing the synthesis of COX gene products.

PMID:
19339800
[PubMed - indexed for MEDLINE]

Related citations

KARGER Full Text

Publication Types, MeSH Terms, Substances

-

3.

Acta Pharmacol Sin. 2007 Mar;28(3):392-7.

Protective effect of ginsenoside Rg1 on glutamate-induced lung injury.

Shen L, Han JZ, Li C, Yue SJ, Liu Y, Qin XQ, Liu HJ, Luo ZQ.

Source

Departments of Physiology, Xiangya medical school, Central South University, Changsha 410078, China.

Abstract

AIM:

To examine the possible protective effect of ginsenoside Rg1, an active component of **ginseng**, on **lung** injury caused by glutamate in vivo.

METHODS:

The **lungs** of mice receiving glutamate (0.5 g/kg) and/or ginsenoside Rg1 (0.03 g/kg) via intraperitoneal administration were collected. The indexes of **lung** wet weight/ body weight ratios (LW/BW), **lung** wet/dry weight ratios (W/D), heart rate (HR), and breathing rate (BR) were determined. The activity of nitric oxide synthase (NOS), xanthine oxidase (XOD), superoxide dismutase (SOD), catalase (CAT), the content of NO, and malondialdehyde in the **lung** homogenate were measured.

RESULTS:

Treatment with glutamate for 2 h increased LW/BW, W/D, HR, and BR. These changes were nearly abolished by pretreatment with ginsenoside Rg1 for 30 min before glutamate injection. An analysis of the lung homogenate demonstrated the protective effect as evidenced by the inhibition of NOS (12%) and XOD (50%) inactivity, the enhanced activity of SOD (20%) and CAT (25%).

CONCLUSION:

Ginsenoside Rg1 has a potential protective role in lung diseases associated with glutamate toxicity.

PMID:
17303002
[PubMed - indexed for MEDLINE]

Related citations

Publication Types, MeSH Terms, Substances

***Zingiberis officinale* Roscoe (GINGER)**

Int Immunopharmacol. 2008 Dec 10;8(12):1626-32. Epub 2008 Aug 8.

Ginger prevents Th2-mediated immune responses in a mouse model of airway inflammation.

Ahui ML, Champy P, Ramadan A, Pham Van L, Araujo L, Brou André K, Diem S, Damotte D, Kati-Coulibaly S, Offoumou MA, Dy M, Thieblemont N, Herbelin A.

Source

CNRS UMR 8147, Université Paris Descartes, Faculté de Médecine, Hôpital Necker, 161 rue de Sèvres; 75783 Paris Cedex 15, France.

Abstract

It is well documented that compounds from rhizomes of Zingiber officinale, commonly called **ginger**, have anti-inflammatory properties. Here, we show that **ginger** can exert such functions in vivo, namely in a mouse model of Th2-mediated pulmonary inflammation. The preparation of **ginger** aqueous extract (Zo.Aq) was characterized by mass spectrometry as an enriched fraction of n-gingerols. Intraperitoneal injections of this extract before airway challenge of ovalbumin (OVA)-sensitized mice resulted in a marked decrease in the recruitment of eosinophils to the **lungs** as attested by cell

counts in bronchoalveolar lavage (BAL) fluids and histological examination. Resolution of airway inflammation induced by Zo.Aq was accompanied by a suppression of the Th2 cell-driven response to allergen in vivo. Thus, IL-4, IL-5 and eotaxin levels in the **lungs** as well as specific IgE titres in serum were clearly diminished in **ginger**-treated mice relative to their controls after allergen sensitization and challenge. **Finally, we found that [6]-gingerol, a major constituent of ginger, was sufficient to suppress eosinophilia in our model of inflammation. This is the first evidence that ginger can suppress Th2-mediated immune responses and might thus provide a possible therapeutic application in allergic asthma.**

PMID:
18692598
[PubMed - indexed for MEDLINE]

Related citations

ELSEVIER FULL-TEXT ARTICLE

Publication Types, MeSH Terms, Substances

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2.

Can J Physiol Pharmacol. 2008 May;86(5):264-71.

Ginger attenuates acetylcholine-induced contraction and Ca2+ signalling in murine airway smooth muscle cells.

Ghayur MN, Gilani AH, Janssen LJ.

Source

Department of Medicine, McMaster University, St. Joseph's Hospital, Room L-314, 50 Charlton Avenue East, Hamilton, ON L8N4A6, Canada. nghayur@mcmaster.ca

Abstract

Asthma is a chronic disease characterized by inflammation and hypersensitivity of airway smooth muscle cells (ASMCs) to different spasmogens. The past decade has seen increased use of herbal treatments for many chronic illnesses. **Ginger** (Zingiber officinale) is a common food plant that has been used for centuries in treating respiratory illnesses. In this study, we report the effect of its 70% aqueous methanolic crude extract (Zo.Cr) on acetylcholine (ACh)-induced airway contraction and Ca(2+) signalling in ASMCs using mouse **lung** slices. Airway contraction and Ca(2+) signalling, recorded via confocal microscopy, were induced with ACh, either alone or after pretreatment of slices with Zo.Cr and (or) verapamil, a standard Ca(2+) channel blocker. ACh (10 micromol/L) stimulated airway contraction, seen as decreased airway diameter, and also stimulated Ca(2+) transients (sharp rise in [Ca(2+)]i) and oscillations in ASMCs, seen as increased fluo-4-induced fluorescence intensity. When Zo.Cr (0.3-1.0 mg/mL) was given 30 min before ACh administration, the ACh-induced airway contraction and

Ca(2+) signalling were significantly reduced. Similarly, verapamil (1 micromol/L) also inhibited agonist-induced airway contraction and Ca(2+) signalling, indicating a similarity in the modes of action. When Zo.Cr (0.3 mg/mL) and verapamil (1 micromol/L) were given together before ACh, the degree of inhibition was the same as that observed when each of these blockers was given alone, indicating absence of any additional inhibitory mechanism in the extract. In Ca(2+) -free solution, both Zo.Cr and verapamil, when given separately, inhibited Ca(2+) (10 mmol/L)-induced increase in fluorescence and airway contraction. **This shows that ginger inhibits airway contraction and associated Ca(2+) signalling, possibly via blockade of plasma membrane Ca(2+) channels, thus reiterating the effectiveness of this age-old herb in treating respiratory illnesses.**

PMID:
18432287
[PubMed - indexed for MEDLINE]

Related citations

Publication Types, MeSH Terms, Substances

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3.

Prostaglandins Leukot Essent Fatty Acids. 2007 Oct-Nov;77(3-4):129-38. Epub 2007 Oct 17.

Effect of hydroalcoholic extract of Zingiber officinalis rhizomes on LPS-induced rat airway hyperreactivity and lung inflammation.

Aimbire F, Penna SC, Rodrigues M, Rodrigues KC, Lopes-Martins RA, Sertié JA.

Source

Laboratory of Animal Experimental, Research and Development Institute, University of Valley of Paraíba, Av. Shishima Hifumi, 2911 Urbanova, 12244-000 São José dos Campos, SP, Brazil. aimbire@univap.br

Abstract

Ginger, the rhizome of Zingiber officinalis Roscoe (Zingiberaceae), is a common constituent of diets around the world and its extracts have been reported to exhibit several pharmacological activities. We investigated the effect of crude hydroalcoholic extract of **ginger** on the rat trachea hyperreactivity (RTHR) and **lung** inflammation induced by lipopolysaccharide (LPS). Our results demonstrate that **ginger** extract and celecoxib attenuated RTHR 90 min and 48 h after LPS. **Ginger** and celecoxib reduced the serum level of prostaglandin (PGE2) and thromboxane (TXA2) 90 min after LPS. Celecoxib and **ginger** also reduced myeloperoxidase activity and the number of cells in rat bronchoalveolar lavage 48 h post-LPS**. On lung parenchyma, ginger and celecoxib**

reduced the release of PGE2 and TXA2 48 h post-LPS. These results suggest that ginger exerts an anti-inflammatory effect on lung attenuating RTHR and COX metabolites seem to be involved in these processes.

PMID:
17923400
[PubMed - indexed for MEDLINE]
Related citations
ELSEVIER
FULL-TEXT ARTICLE

Pharmaceutical Name

Rhizoma zingiberis

Botanical Name

Zingiber officinale (Willd.) Rosc.

Common Name

Dried ginger

Source of Earliest Record

Shennong Bencao Jing

Part Used & Method for Pharmaceutical Preparations

The rhizomes are dug in winter. After the fibrous roots have been removed, the rhizomes are cleaned, dried in the sun and cut into slices.

Properties & Taste

Pungent and hot

Meridians

Spleen, stomach, heart and **lung**

Functions

1. To warm spleen and stomach and dispel cold; 2. To prevent yang from collapsing; 3. **To warm the lungs and resolve phlegm-damp**

Indications & Combinations

1. Cold attacking the spleen and stomach manifested as cold pain in the epigastric and abdominal regions, vomiting and diarrhea. Dried ginger (Ganjiang) is used with Evodia fruit (Wuzhuyu) and Pinellia tuber (Banxia). 2. Weakness and cold in the spleen and stomach manifested as fullness and distension in the epigastric and abdominal regions, vomiting, nausea, loose stool, poor appetite, lassitude and deficient, weak pulse. Dried ginger (Ganjiang) is used with White atractylodes (Baizhu) and Poria (Fuling) in the formula Lizhong Wan. 3. Collapsing of yang manifested as cold sweating, cold extremities, spontaneous sweating, listlessness and fading pulse. Dried ginger (Ganjiang) is used with Prepared aconite root (Fuzi) in the formula Sini

Tang. 4**. Cold phlegm in the lungs manifested as chills, asthma, cough with clear and profuse sputum and cold feeling in the upper back.** Dried ginger (Ganjiang) is used with Ephedra (Mahuang), Asarum herb (Xixin) and Pinellia tuber (Banxia) in the formula Xiao Qinglong Tang.

Dosage

3-10 g

Glycyrrhiza uralensis (LICORICE)

Fundam Clin Pharmacol. 2011 Jun 1. doi: 10.1111/j.1472-8206.2011.00956.x. [Epub ahead of print]

Protective effects of liquiritin apioside on cigarette smoke-induced lung epithelial cell injury.

Guan Y, Li FF, Hong L, Yan XF, Tan GL, He JS, Dong XW, Bao MJ, Xie QM.

Source

Zhejiang Respiratory Drugs Research Laboratory of State Food and Drug Administration of China, Medical College of Zhejiang University, Yuhangtang Rd-866, Hangzhou, China Affiliated Sir Run Run Shaw Hospital of Medical College, Zhejiang University, Qingchundong Rd-3, Hangzhou, China Affiliated Second Hospital of Medical College, Zhejiang University, Jiefang Rd-88, Hangzhou, China.

Abstract

Cigarette smoking is associated with an increased incidence of chronic obstructive pulmonary disease (COPD). In this study, we hypothesized that liquiritin apioside (LA), a main flavonoid component from **Glycyrrhiza** uralensis, had antioxidant properties by inducing glutathione (GSH) biosynthesis via the inhibition of cytokines and protected **lung** epithelial cells against cigarette smoke-mediated oxidative stress. A549 cells were treated with cigarette smoke extract (CSE) and/or LA. ICR mice were exposed to cigarette smoke (CS) for four days with increasing exposure time for up to 6 h per day to elicit epithelial cells injury. One hour before smoke exposure, mice were treated with LA h after the last CS exposure all examinations were by gavage; 18 performed. Treatment with LA concentration-dependently prevented CSE-induced cytotoxicity, increase of TGF-β and TNF-α mRNA expression, depletion of GSH and apoptosis in A549 cells. LA at doses 3, 10 and mg/kg dose-dependently inhibited pulmonary neutrophil and macrophage 30 inflammation. **Lung sections of the CS-exposed LA treated mice showed an apparently reduced pulmonary inflammation and a significant inhibitory effect on mucus containing goblet cells in the large airways. Furthermore, the CS-induced pulmonary release of TGF-β, TNF-α and myeloperoxidase activity was reduced, and superoxide dismutase activity was enhanced.These results indicate that protective roles of LA on CS-induced the lung epithelial cell injury are mediated by**

inhibiting TGF-β and TNF-α expression and increasing anti-oxidative levels of GSH, suggesting that LA might be effective as protective agent against epithelial injury in COPD.

PMID:
21631586
[PubMed - as supplied by publisher]

Related citations

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2.

J Ethnopharmacol. 2009 Jul 30;124(3):530-8. Epub 2009 May 18.

Xia-bai-san inhibits lipopolysaccharide-induced activation of intercellular adhesion molecule-1 and nuclear factor-kappa B in human lung cells.

Lee KH, Yeh MH, Kao ST, Hung CM, Chen BC, Liu CJ, Yeh CC.

Source

Hsin-Chu Branch Station, Council of Agriculture-TLI, Hsin-Chu, Taiwan, ROC.

Abstract

Xia-bai-san (XBS) is a traditional Chinese medicine that has been used clinically for centuries in Asian countries to treat some types of common cold and asthma-like diseases similar to infantile pneumonia and childhood bronchitis. In previous studies, XBS was found to suppress the inflammatory process induced in lungs of mice treated with lipopolysaccharide (LPS).

PURPOSE:

The present study was undertaken to examine the effects of XBS on LPS-inducible production of inflammatory cytokines, up-regulation of intercellular cell adhesion molecule-1 (ICAM-1), and activation of nuclear factor NF-kappaB in cultured human **lung** cells.

PRINCIPAL RESULTS:

Extracts of four raw herbs (Cortex mori, Cortex lycii, Radix glycyrrhizae, and Fructus oryzae) were used to prepare the decoction. XBS decreased the histological damage and up-regulation of ICAM-1 observed in lungs of mice treated with lipopolysaccharide (LPS). In cultured human pulmonary epithelial A549 cells, XBS and its components Morus alba and **Glycyrrhiza** uralensis suppressed the up-regulation of IL-8 and ICAM-1 in response to LPS. Production of TNF-alpha, IL-1beta, IL-6 and IL-8 by LPS-treated human THP-1

monomyelocytes was also suppressed by XBS. A549 cells expressed ICAM-1 in response to medium from LPS-treated THP-1 cells; expression was decreased by XBS. The adhesion of THP-1 cells to LPS-treated A549 cells were inhibited in the presence of XBS. Activation of NF-kappaB by LPS in A549 cells was suppressed by XBS, Morus alba, and **Glycyrrhiza** uralensis through inhibition of IkappaB phosphorylation; the concentrations at which suppression occurred were identical to those at which production of inflammatory cytokines and up-regulation of ICAM-1 were inhibited.

MAJOR CONCLUSIONS:

These findings support the hypothesis that XBS, Morus alba, and Glycyrrhiza uralensis inhibit the inflammatory process in lung tissue through suppression of the IkappaB signaling pathway. XBS may prove helpful in the management of asthma, various allergic disorders, sepsis, or any other condition associated with pulmonary inflammation.

PMID:
19454309
[PubMed - indexed for MEDLINE]

Related citations

ELSEVIER FULL-TEXT ARTICLE

Publication Types, MeSH Terms, Substances

-

3.

Antiviral Res. 2009 Aug;83(2):171-8. Epub 2009 May 3.

Glycyrrhizin inhibits influenza A virus uptake into the cell.

Wolkerstorfer A, Kurz H, Bachhofner N, Szolar OH.

Source

Onepharm Research & Development GmbH, Vienna, Austria.

Abstract

We investigated the mechanism by which glycyrrhizin (GL), the main active component of licorice roots, protects cells from infection with influenza A virus (IAV). We found that GL treatment leads to a clear reduction in the number of IAV-infected human **lung** cells as well as a reduction in the CCID50 titer by 90%. The antiviral effect, however, was limited to one or two virus replication cycles. Analysis of different GL treatment protocols suggested that the antiviral effect of GL was limited to an early step in the virus replication cycle. A direct inhibitory action of GL on IAV particles could be excluded and GL did not interact with virus receptor binding either. The antiviral effect of GL was abolished by treatment 1h after virus infection, whereas pre-treatment and treatment during and after virus adsorption led to a reduction in the cytopathic effect, reduced

viral RNA within the cells and in the cell supernatants, and reduced viral hemagglutination titers. Detailed virus uptake analyses unambiguously demonstrated reduced virus uptake in various GL-treated cells. **These observations lead to the conclusion, that the antiviral activity of GL is mediated by an interaction with the cell membrane which most likely results in reduced endocytotic activity and hence reduced virus uptake. These insights might help in the design of structurally related compounds leading to potent anti-influenza therapeutics.**

PMID:
19416738
[PubMed - indexed for MEDLINE]

Related citations

ELSEVIER FULL-TEXT ARTICLE

Publication Types, MeSH Terms, Substances

-

4.

J Agric Food Chem. 2009 Feb 11;57(3):820-5.

Licorice flavonoids inhibit eotaxin-1 secretion by human fetal lung fibroblasts in vitro.

Jayaprakasam B, Doddaga S, Wang R, Holmes D, Goldfarb J, Li XM.

Source

Departments of Pediatrics, Genetics and Genomics Science, and Pharmacology and Systems Therapeutics, Mount Sinai School of Medicine, New York City, New York 10029, USA.

Abstract

Glycyrrhiza uralensis (Gan-Cao), commonly called "licorice", is one of the most commonly used herbs in traditional Chinese medicine (TCM). In the United States, licorice products are most often consumed as flavoring and sweetening agents in food products. **The licorice triterpenoid glycyrrhizin has several biological activities, including anti-inflammatory activity. Other potential anti-inflammatory constituents in G. uralensis have not been fully investigated. Airway eosinophilic inflammation is a major feature of allergic asthma.** Eotaxin-1 (eotaxin) is involved in the recruitment of eosinophils to sites of antigen-induced inflammation in asthmatic airways. Because human **lung** fibroblasts are the major source of eotaxin, inhibition of eosinophil recruitment by suppression of fibroblast eotaxin production is a potentially valuable approach for the pharmacological intervention in asthma. A systematic bioassay-guided purification of G. uralensis yielded five flavonoids: liquiritin, liquiritigenin, isoliquiritigenin, 7,4'-dihydroxyflavone, and isoononin. The structures of the compounds were established by (1)H and (13)C nuclear magnetic resonance (NMR) and liquid chromatography-mass spectrometry (LC-MS) studies. The potential ability of these

isolated pure compounds and glycyrrhizin to inhibit secretion of eotaxin-1 by human fetal **lung** fibroblasts (HFL-1) was tested**. Liquiritigenin, isoliquiritigenin, and 7,4'-dihydroxyflavone were more effective than liquiritin, isoononin, and glycyrrhizin in suppressing eotaxin secretion. A concentration-response study showed the IC(50) concentrations of liquiritigenin, isoliquiritigenin, and 7,4'-dihydroxyflavone were 4.2, 0.92, and 0.21 microg/mL, respectively, demonstrating that Glycyrrhiza flavonoids inhibit eotaxin-1 secretion in vitro.**

PMID:
19132888
[PubMed - indexed for MEDLINE]
PMCID: PMC2748415
Free PMC Article
Related citations

Publication Types, MeSH Terms, Substances, Grant Support

-

5.

Int Immunopharmacol. 2009 Feb;9(2):194-200. Epub 2008 Dec 9.

Inhibitory effects of flavonoids extracted from licorice on lipopolysaccharide-induced acute pulmonary inflammation in mice.

Xie YC, Dong XW, Wu XM, Yan XF, Xie QM.

Source

Zhejing Respiratory Drugs Research Laboratory of State Food and Drugs Administration of China, Zhejiang University, Hangzhou 310058, China.

Abstract

Airway inflammation plays important roles in the pathogenesis of acute respiratory distress syndrome (ARDS), asthma and chronic obstructive pulmonary disease (COPD), and anti-inflammatory treatment effectively improves the symptoms of these diseases. To develop the potentially therapeutic compounds for the treatment of pulmonary inflammation, we investigated the effects of licorice flavonoids (LF) extracted from the roots of **Glycyrrhiza** uralensis (licorice) on lipopolysaccharide (LPS)-induced acute pulmonary inflammation in mice. Acute pulmonary inflammation was induced by intracheal instillation with LPS, treatment with LF at dosages of 3, 10 and 30 mg/kg significantly reduced the LPS-induced inflammatory cells, including neutrophils, macrophages and lymphocytes accumulation in bronchoalveolar lavage fluids (BALF), among these inflammatory cells, LF predominately inhibited neutrophil infiltration, and the maximal effect (30 mg/kg) was as comparable as dexamethasone treatment at 1 mg/kg. Consistent with its effects on neutrophil infiltration, LF treatment significantly

increased LPS-induced BALF superoxide dismutase activity, and significantly decreased **lung** myeloperoxidase activity as well. Furthermore, treatment with LF at 30 mg/kg significantly reduced LPS-induced **lung** TNFalpha and IL-1beta mRNA expression at 6 h and 24 h after LPS instillation, respectively. Finally, LF at different dosages not only significantly decreased the elevation of **lung** water content, but also markedly attenuated LPS-induced histological alteration. **Therefore, we suggest that LF effectively attenuates LPS-induced pulmonary inflammation through inhibition of inflammatory cells infiltration and inflammatory mediator release which subsequently reduces neutrophil recruitment into lung and neutrophil-mediated oxidative injury, and this study provides with the potential rationale for development of anti-inflammatory compounds from flavonoid extracts of licorice.**

PMID:
19071231
[PubMed - indexed for MEDLINE]

Related citations

ELSEVIER FULL-TEXT ARTICLE

Publication Types, MeSH Terms, Substances

- 6.

Pharmacol Res. 2008 Jul;58(1):22-31. Epub 2008 Jun 11.

Glycyrrhizin attenuates the development of carrageenan-induced lung injury in mice.

Menegazzi M, Di Paola R, Mazzon E, Genovese T, Crisafulli C, Dal Bosco M, Zou Z, Suzuki H, Cuzzocrea S.

Source

Biochemistry Division, Department of Neuroscience and Vision, University of Verona, Verona, Italy.

Abstract

Glycyrrhizin is a triterpene glycoside, a major active constituent of licorice (**Glycyrrhiza** glabra) root and numerous pharmacological effects like anti-inflammatory, anti-viral, anti-tumour and hepatoprotective activities has been attributed to it. In this study we evaluated the anti-inflammatory activities of glycyrrhizin in mice model of acute inflammation, carrageenan-induced pleurisy. We report here that glycyrrhizin (given at 10 mg/kg i.p. 5 min prior to carrageenan) exerts potent anti-inflammatory effects in this model. Injection of carrageenan into the pleural cavity of mice elicited an acute inflammatory response characterized by fluid accumulation in the pleural cavity which contained a large number of neutrophils (PMNs) as well as an infiltration of PMNs in **lung** tissues and subsequent lipid peroxidation (as determinated by thiobarbituric acid-reactant substances measurement) and increased production of tumour necrosis factor-

alpha (TNF-alpha) and interleukin-1beta (IL-1beta). All these parameters were attenuated by glycyrrhizin. Furthermore, carrageenan induced an upregulation of the expression of intercellular cell adhesion molecule (ICAM-1), P-selectin, as well as an increase in the amounts of nitrotyrosine and poly(ADP-ribose) (PAR), as determined by immunohistochemical analysis of **lung** tissues. The degree of staining for the ICAM-1, P-selectin, nitrotyrosine and PAR was significantly reduced by glycyrrhizin. **Additionally, we demonstrate that these inflammatory events were associated with the activation of nuclear factor-kappaB (NF-kappaB) and signal transducer and activator transcription-3 (STAT-3) activation in the lung. NF-kappaB and STAT-3 activation were significantly reduced by glycyrrhizin treatment. Taken together, our results indicate that prevention of the activation of NF-kappaB and STAT-3 by glycyrrhizin reduces the development of acute inflammation.**

PMID:

18590825

[PubMed - indexed for MEDLINE]

Related citations

Publication Types, MeSH Terms, Substances

-

7.

Eur J Pharmacol. 2008 Jun 10;587(1-3):257-66. Epub 2008 Mar 29.

Isoliquiritigenin, a flavonoid from licorice, relaxes guinea-pig tracheal smooth muscle in vitro and in vivo: role of cGMP/PKG pathway.

Liu B, Yang J, Wen Q, Li Y.

Source

Department of Pharmacology, College of Medicine, Wuhan University, Wuhan 430071, China; Department of Pharmacy, Hubei Cancer Hospital, Wuhan 430079, China.

Abstract

Licorice root is used to treat asthma as a component of Shaoyao-Gancao-tang, a traditional Chinese medicine formula. In this study, we investigated the tracheal relaxation effects of isoliquiritigenin, a flavonoid isolated from the roots of **Glycyrrhiza** glabra (a kind of Licorice), on guinea-pig tracheal smooth muscle in vitro and in vivo. The tension changes of isolated tracheal rings were isometrically recorded on a polygraph. The large-conductance Ca2+-activated K+ channels (BKCa) were measured by inside-out patch-clamp techniques and intracellular Ca2+concentrations ([Ca2+]i) were tested by microfluorometric method in guinea-pig tracheal smooth muscle cells (TSMCs). Isoliquiritigenin produced concentration-dependent relaxation in isolated guinea-pig tracheal rings precontracted with acetylcholine, KCl, and histamine. Pretreatments with

charybdotoxin, ODQ and KT5823 attenuated the relaxation induced by isoliquiritigenin. Isoliquiritigenin significantly increased intracellular cGMP level in cultured TSMCs and inhibited the activity of phosphodiesterase (PDE) 5 in human platelets. Moreover, isoliquiritigenin increased by 9-fold the probability of BKCa channel openings of TSMCs in inside-out patches and markedly reduced [Ca2+]i rise induced by acetylcholine inTSMCs, pretreatment with KT5823 attenuated above two responses to isoliquiritigenin. In vivo experiment isoliquiritigenin significantly prolonged the latency time of histamine-acetylcholine aerosol-induced collapse and inhibited the increase of **lung** overflow induced by intravenously administered histamine dose-dependently. **These data indicate that isoliquiritigenin relaxes guinea-pig trachea through a multiple of intracellular actions, including sGC activation, inhibition of PDEs, and associated activation of the cGMP/PKG signaling cascade, leading to the opening of BKCa channels and [Ca2+]i decrease through PKG-dependent mechanism and thus to tracheal relaxation.**

PMID:

18462716

[PubMed - indexed for MEDLINE]

Related citations

ELSEVIER FULL-TEXT ARTICLE

Publication Types, MeSH Terms, Substances

- 8.

Int Immunopharmacol. 2006 Sep;6(9):1468-77. Epub 2006 Jun 6.

Glycyrrhizin alleviates experimental allergic asthma in mice.

Ram A, Mabalirajan U, Das M, Bhattacharya I, Dinda AK, Gangal SV, Ghosh B.

Source

Molecular Immunogenetics Laboratory, Institute of Genomics and Integrative Biology, Mall Road, Delhi-110007, India.

Abstract

Asthma is a chronic respiratory disease, the incidence of which is increasing globally. The existing therapy is inadequate and has many adverse effects. It needs a better therapeutic molecule preferably of natural origin, which has negligible or no adverse effects. **In view of this, we evaluated Glycyrrhizin (GRZ), a major constituent of a plant Glycyrrhiza glabra, for its efficacy on asthmatic features in a mouse model of asthma. BALB/c mice were sensitized and challenged with ovalbumin (OVA) to develop the asthmatic features such as airway hyperresponsiveness: allergen induced airway constriction and airway hyperreactivity (AHR) to methacholine (MCh), and pulmonary inflammation**. The mice were orally treated with GRZ (2.5, 5, 10 and 20 mg/kg) during

or after OVA-sensitization and OVA-challenge to evaluate its protective or reversal effect, respectively on the above asthmatic features. The status of airway hyperresponsiveness was measured by monitoring specific airway conductance (SGaw) using a non-invasive method and the pulmonary inflammation was assessed by haematoxylin and eosin staining of **lung** sections. Several other parameters associated with asthma such as interleukin (IL)-4, IL-5 interferon-gamma (IFN-gamma), OVA-specific IgE, total IgG(2a) and cortisol were measured by ELISA. GRZ (5 mg/kg) markedly inhibited OVA-induced immediate airway constriction, AHR to MCh ($p<0.01$), **lung** inflammation, and infiltration of eosinophils in the peribronchial and perivascular areas. It prevented the reduction of IFN-gamma ($p<0.02$), and decreased IL-4 ($p<0.05$), IL-5 ($p<0.05$) and eosinophils ($p<0.0002$) in the BAL fluid. Also, it reduced OVA-specific IgE levels ($p<0.01$) and prevented the reduction of total IgG(2a) ($p<0.01$) in serum. We have also showed that it has no effect on serum cortisol levels**. Our results demonstrate that GRZ alleviates asthmatic features in mice and it could be useful towards developing a better therapeutic molecule in the future.**

PMID:
16846841
[PubMed - indexed for MEDLINE]

Related citations

Publication Types, MeSH Terms, Substances

•

10.

Ter Arkh. 1999;71(3):45-8.

[State of pulmonary metabolism during radiotherapy of thoracic neoformations and possibilities of its correction].

[Article in Russian]

Palagina MV, Khasina MA, Klimkina TN, Luchaninova VN, Shvets OV.

Abstract

AIM:

The study pulmonary metabolism by exhalation condensate of expired air (CEA) and ways of its correction in patients exposed to radiotherapy to the chest area.

MATERIALS AND METHODS:

25 women aged 20 to 40 years with breast cancer stage I-II were divided into two groups: control group underwent conservative treatment without correction and the study group **was given the extract of Ural licorice for 14 days.** In CEA, lipid peroxidation

enzymes and products of thiobarbituric acid were assayed. Biochemical examination of CEA was done by means of Cobas mira automatic analyzer.

RESULTS:

Administration of Ural licorice promoted inactivation of lipid peroxidation and maintenance of most of the biochemical parameters on the baseline level. This effect may be due to composition of the Ural licorice which contains antioxidants and stimulators of **lung** surfactant synthesis.

CONCLUSION:

Administration of Ural licorice extract seems promising for prevention of radiation complications in the lungs during radiotherapy to the chest area.

PMID:

10234765

[PubMed - indexed for MEDLINE]

Related citations