

中药沙参类研究

V. 镇咳祛痰药理作用比较

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摘要 对常用的10种沙参类生药进行了镇咳、祛痰药理作用比较,结果表明莱阳参、河南沙参、泡沙参、川藏沙参镇咳作用明显,川藏沙参、无柄沙参、泡沙参祛痰作用明显。

关键词 沙参 中药药理 镇咳 祛痰

沙参具有养阴清肺,止咳祛痰等功效。目前沙参类中药分成南沙参(沙参)和北沙参(莱阳参),中国药典1990年版收载的南沙参为桔梗科植物杏叶沙参 *Adenophora stricta* Miq. 和轮叶沙参 *A. tetraphylla* (Thunb.) Fisch. 的根,北沙参为伞形科植物珊瑚菜 *Glehnia littoralis* F.Schmidt et Miq. 的根。据调查,目前用作沙参的原植物多达30余种^[1],为了对沙参类生药作出科学的评价,确保用药准确有效,我们在有效成分分析^[2,3]基础上,对常用的10种沙参类生药进行了镇咳、祛痰药理作用比较。

1. 材料

1.1 实验材料:见表1。

1.2 动物:昆明种小鼠,体重18~22g,雌雄各半,购于南京药物研究所动物室。

2 方法与结果

2.1 样品溶液的配制:分别称取表1所列10种沙参药材粉末12g,置60ml索氏提取器中,用乙醇提取8h,回收乙醇,浸膏加少量蒸馏水,在超声波振荡器中振荡使之成混悬液,稀释成30ml,备用。其余药品、试剂以市售。

2.2 镇咳试验^[4]与结果:小鼠120只,随机分成12组,每组10只。第1组灌胃给予等容量的蒸馏水;第2组灌胃给予止咳剂量的可待因,分别作为空白及阳性对照;其余10组分别灌胃给予药材提取液。给药1h后,在1200ml的广口瓶中,喷10ml浓氨水,蒸发30s,然后把小鼠置广口瓶中,刺激30s,立即取出,置2000ml的锥形瓶中,用听诊器测听小鼠在5min内的咳嗽次数和潜伏期。结果见表2。莱阳参、河南沙参、泡沙参、川藏沙参具有明显的镇咳作用,镇咳作用强度莱阳参>河南沙参>泡沙参>川藏沙参>沙参>可待因>杏叶沙参>无柄沙参>石沙参>轮叶沙参>华东杏叶沙参。莱阳参、河南沙参、杏叶沙参、泡沙参、无柄沙参、华东杏叶沙参、石沙参对潜伏期有明显延长作用。

2.3 祛痰试验与结果:小鼠110只,随机分成11组,每组10只。第1组灌胃给予等量的蒸馏

表1 沙参类生药与产地

样 品	产 地
沙参 <i>Adenophora stricta</i> Miq.	江苏南京
河南沙参 <i>A. stricta</i> subsp. <i>henanica</i> P.F.Tu et G.J.Xu	河南嵩县
无柄沙参 <i>A. stricta</i> subsp. <i>sessilifolia</i> Hong	贵州关岭
石沙参 <i>A. polyantha</i> Naikai	河南登封
泡沙参 <i>A. potaninii</i> Korsh.	四川马尔康
杏叶沙参 <i>A. hunanensis</i> Nannf.	河南登封
华东杏叶沙参 <i>A. hunanensis</i> subsp. <i>huadungensis</i> Hong	江西高安
川藏沙参 <i>A. liliifolia</i> : <i>des pax et Hoffm</i>	四川若尔盖
轮叶沙参 <i>A. verticillata</i> Fisch.	贵州关岭
莱阳参 <i>Glehnia littoralis</i> F.Schmidt et Miq.	山东莱阳

以上样品存中国药科大学药材标本室

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表2 镇咳实验结果

生药	潜伏期					咳嗽次数					死亡数
	(s)	t空白	P空白	t可待因	P可待因	次/5min	t空白	P空白	t可待因	P可待因	
蒸馏水	22.6					94					
可待因	26.1					49					
沙参	26.2	1.18	<0.05	0.05	>0.05	40	1.99	>0.05	0.38	>0.05	3
河南沙参	30.0	3.05	<0.01	2.37	<0.05	18	3.45	<0.05	2.29	<0.05	1
无柄沙参	29.4	2.62	<0.05	2.02	>0.05	49	1.96	>0.05	1.52	>0.05	1
石沙参	28.3	2.14	<0.05	1.19	>0.05	50	1.41	>0.05	0.03	>0.05	/
泡沙参	29.7	2.42	<0.05	2.01	>0.05	34	2.46	<0.05	0.73	>0.05	1
杏叶沙参	30.0	3.05	<0.01	2.64	<0.05	48	1.41	>0.05	0.06	>0.05	/
华东杏叶沙参	28.6	2.12	<0.05	1.42	>0.05	63	1.10	>0.05	0.60	>0.05	1
川藏沙参	28.1	2.04	<0.05	1.05	>0.05	36	2.28	<0.05	0.63	>0.05	2
轮叶沙参	29.1	2.55	<0.05	1.79	>0.05	53	1.48	>0.05	0.15	>0.05	/
莱阳参	30.0	3.05	<0.01	2.64	<0.05	4	3.83	<0.01	2.29	<.050	1

说明: 1-前t空白、P空白、t可待因、P可待因为各组的潜伏期与空白对照组及阳性对照组的比较结果

2-后t空白、P空白、t可待因、P可待因为各组的咳嗽次数与空白对照组及阳性对照组的比较结果

水,作为空白对照,其余10组分别灌胃给予药材提取液。给药30min后,每只小鼠腹腔注射0.25%酚红溶液0.25ml。1h后处死,立即剖露气管,用注射器缓慢注入5%NaHCO₃溶液1.5ml,然后缓慢吸出,如此重复3次,洗出呼吸道中排出的酚红,合并3次洗出液,用目测法测出酚红含量,结果见表3。祛痰作用强度为:川藏沙参>无柄沙参>泡沙参>杏叶沙参>河南沙参>莱阳参>华东杏叶沙参>沙参>轮叶沙参。

3 讨论

3.1 从实验结果可以看出沙参的祛痰作用比莱阳参好,莱阳参的镇咳作用比沙参好。

3.2 药典收载的南沙参为沙参*Adenophora stricta*和轮叶沙参*A.verticillata*的根,但药理实验表明沙参和轮叶沙参的镇咳、祛痰作用都较差,而药典未收载的川藏沙参、泡沙参、杏叶沙参镇咳、祛痰作用都较好,有效成分含量也较高,建议下版药典收载。

3.3 本文采用的镇咳实验方法是文献[4]的氨水引咳法的改进。原方法小鼠一直置于氨水刺激中,死亡率较高,本法可以降低死亡率。我们还对广口瓶的最佳体积、氨水用量、蒸发时间和刺激时间进行了试验,结果表明采用1200ml的广口瓶,氨水用量10ml,蒸发时间30s,刺激时间30s,空白组5min内的咳嗽次数一般在85~100次之间,易于观察。

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Rhizome of *Rehmannia glutinosa* Libosch, attention was paid to reveal the chemical changes occurred in the course of processing. In order to find some clues for the process control, changes in the TLC spectrograms were examined and one of the component peak was found changing gradually as the processing went on. Phytochemical separation and identification revealed that the component peak features 5-hydroxy-methyl-furfural (5-HMF). TLCS spectrometric estimation of the 5-HMF contents was developed and used to monitor the process. It was found that the 5-HMF content at the end of processing was 20 times higher than that at the start.

Biological assay indicated that 5-HMF possesses marked antiplatelet activity, which supports the use of Dihuang as a blood activating agent in traditional Chinese medicine.

(Original article on page 13)

The Effects of Injection Stauntoniae on the Conduction of the Saphenous Nerve in Rat

Ye Wenbo, Liu Qiang, Ye Qing, et al

Injection Stauntoniae (IS) was applied on a part of the saphenous nerve of rat 4mm in length. With 50% IS, amplitudes of Aαβ, Aδ and C components of the compound action potential were reduced and their latencies were delayed. In particular, the amplitudes of Aδ and C components reduced to $47.0\% \pm 23.0\%$ and $44.0 \pm 20.0\%$ (MEAN $\pm$ SD, $n=8$, $P<0.01$) of the control's, respectively. With 10% IS, the amplitudes of all components did not reduce significantly, but the latencies of Aαβ, Aδ and C were delayed $0.05 \pm 0.01\text{ms}$ ($P<0.05$), $0.28 \pm 0.07\text{ms}$ ($P<0.05$) and $6.99 \pm 1.48\text{ms}$ ($P<0.01$) ($n=5$) respectively. There was dose-dependency between concentration of IS and its effect on nerve conduction. The effects on Aδ and C components were greater than that on Aαβ component. The effects of blocking conduction of nerve fibers were reversible.

(original article on page 20)

Studies on the Chinese Drug Shasheng

V. Comparison of Antitussive and Expectorant Activities

Tu Pengfei, Zhang Hongbin, Xu Guojun, et al

Shasheng is a common Chinese drug used as antitussive and expectorant. A survey showed that the original plants of Shasheng on the current market consist of more than 30 species. To appraise the qualities of Shasheng scientifically, the antitussive and expectorant activities of ten species of Shasheng were compared. Results showed that the EtOH extracts of the roots of *Glehnia littoralis*, *Adenophora stricta* subsp. *henanica*, *A. potaninii* and *A. liliifolioides* are very effective as antitussive, while those of *A. liliifolioides*, *A. stricta* subsp. *sessilifolia* and *A. potaninii* are very effective as expectorant.

(Original article on page 22)

Studies on Antiinflammatory and Immune Effects of Triptophenolide

Yang Jun, Yu Dongfang, et al

Triptophenolide (TN) is a colorless crystalline plate isolated from ethyl acetate extracts of *Tripterygium wilfordii*. It can obviously inhibit the edema caused by xylol and mixture croton oil, and decrease the concentration of Vitamin C in the adrenal gland of mice. TN can remarkably inhibit the delayed type hypersensitivity (DTH) reaction induced by DNCB and BSA, and diminished the peripheral blood ANAE+lymphocytes in rats and mice. More-