

论著

20种清热解毒中草药体外抗金黄色葡萄球菌活性筛选

王锋^{1,2}, 左国营¹, 韩峻³, 王根春¹

1 解放军昆明总医院植化中心, 云南昆明650032; 2 云南中医学院研究生处, 云南昆明650500; 3 云南中医学院基础医学院, 云南昆明650500

摘要:

目的测定20种清热解毒中草药的80%乙醇提取物体外对标准金黄色葡萄球菌(SA)和耐甲氧西林金黄色葡萄球菌(MRSA)的抗菌活性, 筛选出抑菌效果好的药材。方法制备20种云南中草药乙醇提取物, 采用常规琼脂扩散法对SA及临床分离的MRSA菌株(MRSA 82、MRSA 92、MRSA 111、MRSA 135、MRSA 144)进行体外抑菌试验, 倍比稀释法测定最低抑菌浓度(MIC)和最低杀菌浓度(MBC)。结果20种中草药醇提取物的提取率为5.33%~15.89%, 其中红花提取率(15.89%)最高, 龙葵(12.64%)次之, 菟丝子(5.33%)最低。初筛结果显示, 16种中草药对SA及其耐药菌呈现不同程度的抑制作用, 高度敏感(抑菌圈直径 ≥ 16 mm)的中草药4种(十大功劳、夏枯草、香薷草、老鹳草); 中度敏感(抑菌圈直径 > 10 mm, < 16 mm)的中草药9种(马鞭草、翻白草、酢浆草、一枝黄花、紫花地丁、茵陈、车前草、金钱草、绣球防风); 轻度敏感(抑菌圈直径 ≤ 10 mm)的中草药3种(白头翁、凌霄花、韭菜籽)。多数中草药对耐药菌的抑菌圈大于对标准菌的抑菌圈。13种抑菌活性较好(中、高度敏感)的中草药提取物, 对标准菌和耐药菌的MIC为 $64 \sim 1 024 \mu\text{g/mL}$, MBC为 $128 \sim 2 048 \mu\text{g/mL}$ 。结论十大功劳、夏枯草、香薷草及老鹳草具有较强的抗金黄色葡萄球菌活性, 且对MRSA也有较好的抑制作用。

关键词: 中草药 清热解毒 金黄色葡萄球菌 耐甲氧西林金黄色葡萄球菌 抗菌活性 最低抑菌浓度 最低杀菌浓度

In vitro screen of anti Staphylococcus aureus activity of 20 kinds of heat clearing and toxicity removing Chinese herbal medicines

WANG Feng^{1,2}, ZUO Guo ying¹, HAN Jun³, WANG Gen chun¹

1 Research Center for Natural Medicines, Kunming General Hospital, PLA, Kunming 650032, China; 2 Graduate School, Yunnan University of Traditional Chinese Medicine, Kunming 650500, China; 3 School of Basic Medical Sciences, Yunnan University of Traditional Chinese Medicine, Kunming 650500, China

Abstract:

Objective To determine antimicrobial activity of 80% ethanol extracts of 20 kinds of heat clearing and toxicity removing Chinese herbal medicines (CHM) against Staphylococcus aureus (SA) and methicillin resistant Staphylococcus aureus (MRSA), so as to screen medicines with strong bacterial inhibition. Methods Ethanol extracts of 20 kinds of CHM were prepared, in vitro antimicrobial activity against SA and MRSA (MRSA 82, MRSA 92, MRSA 111, MRSA 135, and MRSA 144) were determined by agar diffusion method, minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined by double dilution method. Results The extraction rate of ethanol extracts of 20 kinds of CHM ranged 5.33%-15.89%, Flos Carthami had the highest extraction rate (15.89%), followed by Solanum nigrum (12.64%), Cuscuta chinensis Lam had the lowest extraction rate (5.33%), 16 kinds of ethanol extracts showed different inhibitory effect on SA and MRSA, 4 kinds of extracts had high antimicrobial activity (inhibition zone diameter [IZD] ≥ 16 mm, including Mahonia bealei [Fort.], Prunella vulgaris, Herba moslae, and Geranium wilfordii Maxim), 9 extracts had moderate antimicrobial activity (IZD > 10 mm, < 16 mm), including Herba Verbenae, Potentilla discolor, Oxanlis corniculata L., Solidago decurrens Lour, Viola philippica Car, Herba artemisiae Scopariae, Plantago asiatica L. & Plantago depressa Willd, Lysima chianchristinae Hance, and Leucas ciliata Benth), 3 extracts had low antimicrobial activity (IZD ≤ 10 mm, including Pulsatilla chinensis [Bunge] Regel, Campsis grandiflora, and Allium tuberosum Rottler). IZD of most extracts for MRSA were larger than that of standard strain. MIC and MBC of 13 kinds of extracts with better antimicrobial activity against standard and drug resistant strains were $64 \sim 1 024 \mu\text{g/mL}$ and $128 \sim 2 048 \mu\text{g/mL}$ respectively. Conclusion Ethanol extracts of Mahonia bealei (Fort.), Prunella vulgaris, Herba moslae, and Geranium wilfordii Maxim have strong antimicrobial activity against MRSA.

Keywords: Chinese herbal medicine heat clearing and toxicity removing Staphylococcus aureus methicillin resistant Staphylococcus aureus; antimicrobial activity minimum inhibitory concentration minimum bactericidal concentration

收稿日期 2012-12-08 修回日期 2013-02-12 网络版发布日期 2013-09-30

扩展功能

本文信息

Supporting info

PDF (844KB)

[HTML全文]

参考文献PDF

参考文献

服务与反馈

把本文推荐给朋友

加入我的书架

加入引用管理器

引用本文

Email Alert

文章反馈

浏览反馈信息

本文关键词相关文章

中草药

清热解毒

金黄色葡萄球菌

耐甲氧西林金黄色葡萄球菌

抗菌活性

最低抑菌浓度

最低杀菌浓度

本文作者相关文章

PubMed

基金项目:

国家自然科学基金项目(NSFC 81073126)

通讯作者: 左国营

作者简介: 王锋(1987-), 男(汉族), 在读硕士, 陕西省渭南市人, 主要从事中药化学研究。

作者Email: zuoguoying@263.net

参考文献:

- [1] 刘毅, 陈曦. 云南中草药单验方荟萃 [M]. 昆明: 云南科学技术出版社, 2007: 4-150.
- [2] Clinical and Laboratory Standards Institute. Performance standards for antimicrobial disk susceptibility tests [M]. Approved standard, 9th ed. Document M2 A9. Wayne, PA: CLSI, 2006.
- [3] Zuo G Y, Wang G C, Zhao Y B, et al. Screening of Chinese medicinal plants for inhibition against clinical isolates of methicillin resistant *Staphylococcus aureus* (MRSA) [J]. *J Ethnopharmacol*, 2008, 120(2): 287-290.
- [4] 徐叔云, 卞如濂, 陈修, 等. 药理实验方法学 [M]. 第2版. 北京: 人民卫生出版社, 1982: 1067-1071.
- [5] 左国营, 余巍, 徐贵丽, 等. 18种中草药提取物抗金葡菌作用的筛选研究 [J]. *中国药师*, 2005, 8(7): 606-608.
- [6] Clinical and Laboratory Standards Institute. Performance standards for antimicrobial susceptibility testing, Seventeenth informational supplement [S]. M100-S17, Wayne, PA: CLSI, 2007.
- [7] Zuo G Y, Meng F Y, Hao X Y, et al. Antibacterial Alkaloids from *Chelidonium majus* Linn (Papaveraceae) against clinical isolates of methicillin resistant *Staphylococcus aureus* [J]. *J Pharm Pharmaceut Sci*, 2008, 11 (4): 90-94.
- [8] 王航, 孟春, 石贤爱, 等. 抗菌中草药的筛选及其有效成分的分离提取和初步鉴定 [J]. *中国药业*, 2006, 15(20): 15-16.
- [9] 朱明, 熊元君, 马秀敏, 等. 毛金丝桃提取物的体外抗菌实验 [J]. *时珍国医国药*, 2006, 17(9): 1693-1694.
- [10] 张显忠, 郭爱军, 李艳玲, 等. 中草药提取物的体外抑菌活性研究 [J]. *中华医院感染学杂志*, 2006, 16(5): 563-565.
- [11] 董燕, 王仙园, 周红, 等. 中草药对MRSA临床株的抑菌作用研究 [J]. *护理研究(下旬版)*, 2008, 22(4): 863-865.
- [12] 王筠默. 中药十大功劳的研究 [J]. *中医药研究*, 2002, 18(5): 45.
- [13] Cernakova M, Kostalove D. Antimicrobial activity of berberine constituent of *Mahonia aquifolium* [J]. *Folia Microbiologica*, 2002, 47(4): 375-378.
- [14] Slobodniková L, Košťálová D, Labudová D, et al. Antimicrobial activity of *Mahonia aquifolium* crude extract and its major isolated alkaloids [J]. *Phytotherapy Research*, 2004, 18(8): 674-676.

本刊中的类似文章

1. 吴旭琴, 冯薇, 乔美珍, 刘月秀, 金美娟, 吴琛. 2007—2010年金黄色葡萄球菌临床分离与耐药变迁[J]. *中国感染控制杂志*, 2012, 11(1): 55-58
2. 钟宇眉, 钟信刚, 王叶子, 杨敏, 华鹏, 刘仁淳, 吴海城. 湿疹皮炎皮损菌群测定与抗感染治疗研究[J]. *中国感染控制杂志*, 2013, 12(3): 211-214
3. 彭俊, 顾敏, 蒋最明, 金今, 刘佳强, 陈旭鹏. 2010—2012年万古霉素对耐甲氧西林金黄色葡萄球菌MIC值的变化[J]. *中国感染控制杂志*, 2013, 12(5): 344-346
4. 陈伟, 刘文恩, 李艳明, 李虹玲, 简子娟, 李艳华, 彭婉婵, 谷秀梅. 一所大型教学医院临床分离肺炎链球菌耐药性分析[J]. *中国感染控制杂志*, 2013, 12(5): 373-376
5. 龚玉姣¹, 吴新伟¹, 邱峰², 胡玉山¹, 张欣强¹, 杨智聪¹. 应用双重PCR快速检测耐甲氧西林金黄色葡萄球菌[J]. *中国感染控制杂志*, 2013, 12(6): 401-403
6. 谢懿, 黄淑芬, 曾娟, 李忠新. 重症监护室耐甲氧西林金黄色葡萄球菌主动筛查检出率分析[J]. *中国感染控制杂志*, 2013, 12(6): 418-420
7. 常洪美, 张丕, 柴建华, 黎宏, 戴忠红, 李建英, 晏东, 蒲奎江, 马琳, 高翔荣, 凌冬, 陈玲, 陈开全. 重症监护室住院患者多重耐药定植菌调查与临床分析[J]. *中国感染控制杂志*, 2013, 12(6): 439-441
8. 贾珉, 王永涛, 贾征夫. 临床不同标本分离金黄色葡萄球菌的药物敏感性[J]. *中国感染控制杂志*, 2013, 12(6): 454-456