



### 秀山海泥浸液对人体蠕形螨的杀灭作用

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#### Acaricidal Activities of the Water Extract of Xiushan Sea Mud against Human *Demodex* Mites

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摘要

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**摘要** 目的 观察秀山海泥浸液体外杀灭皮脂蠕形螨和毛囊蠕形螨的作用。方法 用改良刮压法取人体皮脂蠕形螨和毛囊蠕形螨, 每份标本含运动活泼的蠕形螨30条以上, 均匀涂抹于滴加200  $\mu$ l海泥浸液(浓度分别为2.5、2.0、1.5、1.0和0.5 kg/L)的载玻片上, 10%硫磺乳浊液为阳性对照, 生理盐水为空白对照, 各组实验同时进行; 在20  $^{\circ}$ C, 相对湿度70%条件下, 分别于5 min、10 min、20 min、40 min、1 h、2 h、4 h、8 h、12 h和24 h记录虫体死亡情况, 镜下观察蠕形螨的活动度及其形态。结果 1.0~2.5 kg/L的秀山海泥浸液可使两种蠕形螨活动加剧, 皮脂蠕形螨皱缩变形、扭动、虫体变短, 毛囊蠕形螨足体中央消化管收缩, 尾部呈现较快频率的伸缩运动。浓度由2.5 kg/L降至1 kg/L时, 皮脂蠕形螨和毛囊蠕形螨的活动活跃度比例分别由79.4% (27/34)、65.7% (23/35) 降至68.9% (26/38)、53.8% (21/39), 活跃时间分别由15 min、20 min延长至100 min、104 min。0.5 kg/L的海泥浸液对两种蠕形螨的形态与活动度无明显影响。当秀山海泥浸液浓度由2.5 kg/L降至1.5 kg/L时, 两种蠕形螨的全部死亡时间均由2 h延长至8 h。1 kg/L的秀山海泥浸液对皮脂蠕形螨的杀灭率高于阳性对照组 ( $P < 0.05$ ), 而对毛囊蠕形螨的杀灭率与阳性对照组相比差异无统计学意义 ( $P > 0.05$ )。当浓度降低至0.5 kg/L时, 对皮脂蠕形螨和毛囊蠕形螨的杀灭率明显降低, 与空白组相比差异无统计学意义 ( $P > 0.05$ ), 两种蠕形螨的最低有效浓度均为1 kg/L。皮脂蠕形螨和毛囊蠕形螨1 h的LC50值(半致死浓度)分别为1 913 mg/L与2 131 mg/L。结论 秀山海泥浸液具有杀灭两种人体蠕形螨的作用, 对皮脂蠕形螨的杀灭作用略强于毛囊蠕形螨。

**关键词:** 秀山海泥 浸液 皮脂蠕形螨 毛囊蠕形螨 杀螨作用

**Abstract:** Objective To observe the acaricidal effect of the water extract of Xiushan sea mud on *Demodex brevis* and *D. folliculorum*. Methods *D. brevis* and *D. folliculorum* were obtained with modified scraping method. Each sample contained 30 or more alive *Demodex* which were evenly spread on the slides with 200  $\mu$ l water extract of Xiushan sea mud at a concentration of 2.5, 2.0, 1.5, 1.0 and 0.5 kg/L, respectively. With 10% sulfur emulsion as positive control and saline as blank control, each experiment group was carried out at the same time. Under room temperature of 20  $^{\circ}$ C and relative humidity of 70%, parasite death number was recorded at 5 min, 10 min, 20 min, 40 min, 1 h, 2 h, 4 h, 8 h, 12 h and 24 h. The acaricidal rate was measured and calculated by counting method. *Demodex* activity and morphology were observed using microscope. Results 1.0~2.5 kg/L of the water extract of Xiushan sea mud increased the activities of both kinds of *Demodex*. *D. brevis* showed shrinkage, deformation, twisting and the bodies became shorter. The digesting vasoconstrictions of *D. folliculorum* also shrank and the stretching frequency of the tails moved faster. When the concentration of the sea mud extract decreased from 2.5 kg/L to 1 kg/L, the proportion of active movement of *D. brevis* and *D. folliculorum* decreased from 79.4% (27/34)、65.7% (23/35) to 68.9% (26/38)、53.8% (21/39), and the activity time extended from 15 min, 20 min to 100 min, 104 min, respectively. The 0.5 kg/L of the sea mud extract showed no significant effect on the morphology and activity of both species of *Demodex*. When the concentration decreased from 2.5 kg/L to 1.5 kg/L, the time to kill both *Demodex* spp. extended from 2 h to 8 h. The extract at a concentration of 1 kg/L showed higher acaricidal effect to *D. brevis* than that of positive control ( $P < 0.05$ ), while there was no significant difference for *D. folliculorum* ( $P > 0.05$ ). When the concentration decreased to 0.5 kg/L, the acaricidal effect for *D. brevis* and *D. folliculorum* remarkably reduced and there was no significant difference with the control groups ( $P > 0.05$ ). The lowest effective concentration for both *Demodex* spp. was 1 kg/L. The values of 1 h median lethal concentration (LC50) of the sea mud extract for *D. brevis* and *D. folliculorum* were 1 913 mg/L and 2 131 mg/L, respectively. Conclusion The water extract of Xiushan sea mud shows acaricidal effect to human *Demodex*. The effect to *D. brevis* is slightly better than to *D. folliculorum*.

**Keywords:** Water extract; Xiushan sea mud; *Demodex brevis*; *D. folliculorum*; Acaricidal activity

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