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不同理化因素对曼氏裂头蚴感染性的影响

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Effect of Physicochemical Factors on Infectivity of Spirometra mansoni Plerocercoid

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摘要目的 观察不同理化因素对曼氏裂头蚴感染性的影响。 方法 取含有裂头蚴的黑斑蛙肉(约1 cm³),分别经不同温度(−20 ℃、4 ℃、37 ℃和56 ℃)或不同乙醇浓度(20%、30%、40%、50%和60%)处理1、2或3 h,或经生姜汁、食用醋(总酸浓度4.5%,pH 3.05)或食用酱油(含19.3% NaCl)浸泡3、6、12或24 h,同时均设20 ℃生理盐水对照组。每种条件分别处理含30条裂头蚴的蛙肉,喂饲10只昆明小鼠(3条/只)。另将含20条裂头蚴的蛙肉机械匀浆处理3 min后平均喂饲10只小鼠。所有处理组喂饲1周后剖杀,计数阳性感染鼠数和小鼠体内的裂头蚴数。 结果 裂头蚴于−20 ℃处理2 h,无小鼠感染;56 ℃处理2 h或3 h后,所有小鼠均被感染,分别检获裂头蚴18和13条,具有感染性的裂头蚴所占比例分别为60%和43%,与对照组(均为90%,27/30)之间差异均有统计学意义(P<0.05)。裂头蚴于60%乙醇中浸泡2 h,无小鼠感染;60%乙醇中浸泡2 h或3 h后,所有小鼠均被感染,分别检获裂头蚴18、17和15条,具有感染性的裂头蚴所占比例分别为60%、57%和50%,均显著低于对照组(均为93%,28/30)(P<0.05)。裂头蚴于食用醋中浸泡24 h,或食用酱油中浸泡6 h后,无小鼠感染。裂头蚴经生姜汁浸泡24 h后的感染性与对照组比较差异无统计学意义(P>0.05)。含裂头蚴的蛙肉匀浆后感染小鼠,其中5只小鼠被感染,检获6条裂头蚴。 结论 −20 ℃或60%乙醇处理2 h,食用酱油中浸泡6 h,或食用醋中浸泡24 h,均可使1 cm³蛙肉中的裂头蚴对小鼠的感染性完全丧失。

关键词: 曼氏裂头蚴 感染性 理化因素

Abstract: Objective To observe the effect of different physicochemical factors on the infectivity of Spirometra mansoni plerocercoids. Methods The muscle samples with plerocercoids taken from Rana nigromaculata (about 1 cm³ each piece) were treated with different temperature (-20 °C, 4 °C, 37 °C and 56 °C) or different concentrations of ethanol (20%, 30%, 40%, 50% and 60%) for 1, 2 or 3 h, or soaked in ginger juice, vinegar (total acid concentration of 4.5%, pH 3.05) or soy sauce (containing 19.3% NaCl) for 3, 6, 12 or 24 h. The muscle with plerocercoids treated with normal saline under 20 °C served as control. 30 plerocercoids were used under each condition and fed to 10 mice averagely (3 larvae/mouse). Another 20 plerocercoids with frog meat were comminuted for 3 min then fed to 10 mice. One week later, the mice were sacrificed to collect the parasitic plerocercoids and the number of positive mice and plerocercoids was recorded. Results None of the mice fed with plerocercoids treated under −20 ℃ for 2 h was infected. All the mice fed with plerocercoids treated under 56 °C for 2 h and 3 h were infected. The percentage of infective plerocercoids was 60% (18/30) and 43% (13/30), respectively, considerably lower than those of the control (90%, 27/30) (P<0.05). None of the mice fed with plerocercoids soaked in 60% ethanol for 2 h was infected. All the mice fed with plerocercoids soaked in 60% ethanol for 1 h, or in 50% ethanol for 2 h or 3 h were infected. The percentage of infective plerocercoids was 60% (18/30), 57%(17/30), and 50%(15/30), respectively, considerably lower than those of the control (93%, 28/30) (P<0.05). None of the mice fed with plerocercoids soaked in vinegar for 24 h, or soy sauce for 6 h was infected. The infectivity of the plerocercoids treated by ginger juice for 24 h was similar to the control (P>0.05). Among the ten mice fed with comminuted frog meat with plerocercoids, five were infected with 6 plerocercoids. Conclusion Treatment with -20 °C or 60% ethanol for 2 h, soy sauce for 6 h, or vinegar for 24 h can destroy the infectivity of plerocercoids in 1 cm3 frog muscle.

Keywords: Plerocercoid Infectivity Physicochemical factor

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