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〈NOTE〉

Treatment of *Microcotyle sebastis* (Monogenea: Polyopisthocotylea) Infestation with Praziquantel under Commercial Rockfish (*Sebastes schlegeli*) Culture Conditions

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The treatment efficacy of oral administration of praziquantel against the blood-sucking monogenean *Microcotyle sebastis* under the commercial rockfish-culture conditions was evaluated. The quantity of praziquantel added to the food was calculated so that the amount of praziquantel ingested daily by fish was 200 mg or 400 mg/kg body weight (bw). The fish were fed a moist-pelleted fish meal supplemented with praziquantel at an rate of 0 (control), 200 or 400 mg of praziquantel per kg bw, respectively, for 3 times at an interval of 24 h. On 1 day to 8 days after the treatment, 10 fish were taken randomly from each net-pen daily (80 fish in each group in total), and the efficacy of each treatment was confirmed. Abundance of worms were significantly reduced in groups fed praziquantel-supplemented diets. The results clearly demonstrated that feeding the praziquantel-supplemented diet was effective for controlling *M. sebastis* infestation in practical commercial rockfish-culture systems without imposing any handling stress.

Key words: Praziquantel, *Microcotyle sebastis*, Commercial rockfish culture conditions

The farming of rockfish, *Sebastes schlegeli*, has rapidly increased during the past decade, and the fish has become an important cultured marine fish species in Korea. One problem associated with the farming of rockfish in Korea is the infestation with gill monogenean parasite, *Microcotyle sebastis*. Most polyopisthocotyleans have not been reported to be overtly pathogenic (Paperna, 1987; Thoney & Hargis, 1991), but mortalities were described in various cultured fish species (Kubota & Takakuwa, 1963; Silan et al., 1985; Faisal & Imam, 1990). Polyopisthocotyleans are sanguinivorous (Llewellyn, 1954; Halton & Jennings, 1965). Though a small amount of blood is ingested by each worm, an heavy infection of the parasites should cause the host fish to loose lots of blood. Thoney (1986) suggested that heavy infection of polyopisthocotyleans on individual host can be pathogenic and cause mortalities.

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Praziquantel chemotherapy has been employed to control various internal helminth infections in mammals, and has recently been used to control monogenean diseases in fish by bath (Schmahl and Melhorn, 1985; Moser et al., 1986; Buchmann, 1987; Schmahl and Taraschewski, 1987; Schmahl et al., 1989; Buchmann et al., 1990; Szekely and Molnar, 1990; Thoney, 1990; Santamarina et al., 1991). Although Kim et al. (1998) and Kim & Cho (2000) recently reported the treatment efficacy of praziquantel after oral and bath treatments under the laboratory and pilot net-pen conditions, no experiment has been conducted under commercial rockfish-culture conditions. In the present study, therefore, the efficacy of praziquantel against *M. sebastis* infestation under commercial rockfish culture conditions was evaluated.

Three net-pens, each containing about 10,000 rockfish weighing about 200 g, in a local rockfish farm were used for the experiment. Before feeding prazi-

quantel-supplemented diets, the consumed amount of a feed given at a.m. was enumerated for 3 days, and the quantity of praziquantel added to the food was calculated so that the amount of praziquantel ingested daily by fish was 200 mg or 400 mg/kg body weight (bw). Each group of fish in the three net-pens was designated as control (C), 200 mg of praziquantel per kg bw (200P), and 400 mg of praziquantel per kg bw (400P). The fish in the group C were fed a moist-pelleted fish meal (control diet) throughout the experiment. The fish in the groups 200P and 400P were fed diets supplemented with praziquantel at an rate of 200 mg or 400 mg of praziquantel per kg bw, respectively, for 3 times at an interval of 24 h. The water temperature was 19~20℃. On 1 day to 8 days after the treatment, 10 fish were taken randomly from each net-pen daily, and the efficacy of each treatment was confirmed by the comparison of the number of parasites in each treatment group with that in the control group. All data were analyzed using Mann-Whitneys *U*-test (SPSS 7.5 for Windows, SPSS Inc.), $P<0.05$ being taken as the minimum significance level.

Groups fed praziquantel-supplemented diets (200 P and 400P) showed significantly lower ($P<0.01$) abundances (total number of parasites/number of examined fish) of *M. sebastis* than control (Fig. 1). The abundance of group 400P was significantly lower than that of group 200P ($P<0.01$).

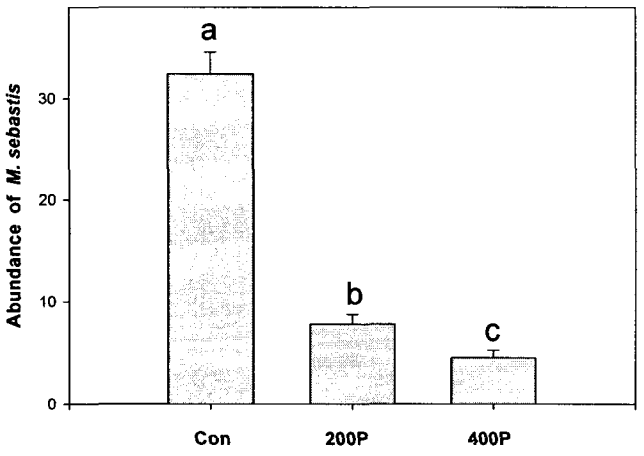

Fig. 1. Abundance (total number of parasites/number of examined fish) of *Microcotyle sebastis* in each experimental group. Values are mean ± standard error (80 fish in each group) and different letters indicate statistical significance at $P<0.01$ (Con, fed control diet; 200P, fed three doses of praziquantel 200 mg/kg of body weight given at 24 h intervals; 400P, fed three doses of praziquantel 400 mg/kg of body weight given at an interval of 24 h).

The results clearly demonstrated that feeding praziquantel-supplemented diet was effective for controlling *M. sebastis* infestation in practical commercial rockfish-culture systems without imposing any handling stress. The difference in feeding amount of treatment diet among individuals in groups 200P and 400P might be a reason of the variation of treatment efficacy.

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