عنوان مقاله:

A factorial experiment for heritability estimation of the reproductive traits of the wild Persian sturgeon, Acipenser persicus

محل انتشار:

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خلاصه مقاله:

Persian sturgeon (Acipenser persicus) is one of the most valuable species of fish native in the Caspian Sea and Iran's waters. In order to evaluate the heritability of reproductive traits in wild Persian sturgeon (A. persicus) three males and three females' fish were caught in the southern area of Caspian Sea and then were crossed by using a ۳×۳ factorial with the aim of selecting the best parent to produce good larvae. Prior to the crossing, sperm density, motility, pH and osmolality, spermatocrit percentages, and the number of micropyles on the eggs` surface were determined. One hundred grams of eggs from each females were fertilized by ۱mL of sperm from each males for a total of and ۹ treatments combinations, (F۱M۱, F۱M۲, F۱M۳, F۲M۱, F۲M۲, F۲M۳, F۳M۱, F۳M۲ and F۳M۳) with ۳ replicates each. Hatching percent was calculated at ۵ h after fertilization and ۴۰۵ eggs were measured for weighting and determining their diameter. Sperm concentration and number of micropyles had no significant effects on fertilization rate ($p>۰.۰۵$). Sperm density also had negative correlations with fertilization ($r=-۰.۶۰۳$, $p<۰.۰۱$) and hatching rates ($r =-۰.۱۷۵$, $p<۰.۰۱$). However, fertilization was positively correlated with osmolality ($r=۰.۵۱۱$) and number of micropyles ($r = ۰.۵۷۴$). The correlation between osmolality and hatching rate was ۰.۲۸۸ and between eggs weight and its diameter was ۰.۶۹۸. Heritability estimates for weight and diameter of eggs were ۰.۰۴۳±۰.۰۳۵ and ۰.۲۰۷±۰.۱۰۳, respectively. The results show treatment ۹ (F۳M۳) had higher genetic values compared to the rest of the treatments. Also due to the large number of micropyle on sturgeon ova, in order to increase the percentage of fertilization rate, sperm density should be .low but motility duration should be high

کلمات کلیدی:

Persian sturgeon, Reproduction, Heritability, Genetic value