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Physiological Responses in Wild Broodstocks of the Caspian Kutum (*Rutilus frisii kutum*) Subjected to Transportation Stress

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Caspian Kutum (*Rutilus frisii kutum*) broodstocks in the wild were subjected to 2 different densities (100 and 300 kg m⁻³) for 2 hr of transport, and their physiological responses were examined. Fifteen fish were placed into the plastic container for each replicate and blood was taken at 0, 10, 30, 60, and 120 min after transportation in different densities. Mean levels of cortisol and glucose as primary and secondary responses to the stress were significantly different between densities. Significant differences in both densities were observed in cortisol for all times and glucose levels at 30 and 120 min after transportation, and the highest values were found in both densities at 120 min. Testosterone concentrations declined considerably in the first 10 min, and then they showed a gradual decrease with a significant difference between 2 densities at 10 and 30 min after transportation. Serum estradiol reached the lowest level at 120 min after transportation, and differences were significant between the 2 densities after 30 min. Based on the results, it was concluded that Kutum broodstocks are sensitive to transport, especially at high density. Therefore, welfare during transport should be considered.

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