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Influence of temperature, concentration and volume of serum on alternative complement pathway activity in European pond turtle (*Emys orbicularis*)

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ABSTRACT:

Little is known about complement system as a component of innate immunity of the ectothermic vertebrates such as turtles. Serum complement is a valuable tool in determining the health status of turtles. In this article, the activation of alternative complement pathway of European pond turtle *(Emys orbicularis)*, using standard haemolytic assays was done. Effect of concentration, volume and temperature of serum complement of *Emys orbicularis,* on unsensitized rabbit red blood cell hemolysis was measured. Serum concentrations of 25% v/v produced 4.17±0.23mm, 50%, 5.05±0.057mm, and 100%, 6.25±0.5 mm hemolysis. 10µL volume of serum resulted in 4.9±0.05mm, 20µl, 5.4±0.52mm and 30µL 6.2±0.19mm hemolysis. Incubation of sera at 5-15°C produced 5.02±0.05mm, 25°C, 5.17±0.095mm and at 35°C 6±0.05mm hemolysis. In this research clear data about the significant effect of concentration, volume and temperature of serum complement on alternative complement pathway activity in turtles were presented. These data suggested that the increased innate immunity induced by high developmental concentration, volume and temperature strength rise the resistance of turtles to the outbreak of diseases.

Keywords:
Emys orbicularis, serum, complement, reptilian, innate immunity.

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