

Simplified Field Technique for Obtaining Blood from Freshwater Turtles

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Brief Communication

Studies on the biochemical and molecular aspects have now been recognized as essential components of the conservation program of species. The choice of the tissue in such studies have invariably been the blood and this has necessitated researchers to look for the best procedure for field sampling without harming or sacrificing the animal.

Several methods have been proposed to obtain uncontaminated blood, each having its merit restricted to the species under study or to the specific experiment. The most common method of collection of samples of blood in reptiles has been by cardiac puncture (Gandal, 1958; Stephens and Creekmore, 1983) but has been less popular in turtles because of their thick plastron. Cutting off the end of the tail (Duguy, 1970), toenail clipping (Frye, 1991) or collecting blood from the major veins and arteries (Maxwell, 1979) have been some of the other proposals. Each of them has at least one disadvantage; for example, intricate dissection of veins/arteries is required (Avery and Vitt, 1984). The procedure for obtaining blood samples from the ventral caudal vein, as suggested by Galbraith (pers. comm.) and described in alligator snapping turtles (Powell and Knesel, 1992), has been initially utilized in our procedure but we had to discard it as the amount of blood obtained was not enough for multiple analyses. Falling back on the oldest method of heart puncture by inserting a long needle laterally through the soft tissue between the plastron and the carapace, we found that the front leg provides the safest and the shortest way to reach the heart, thus avoiding the drilling of the plastron. In addition, our technique does not require elaborate equipment and can be used easily in the field.

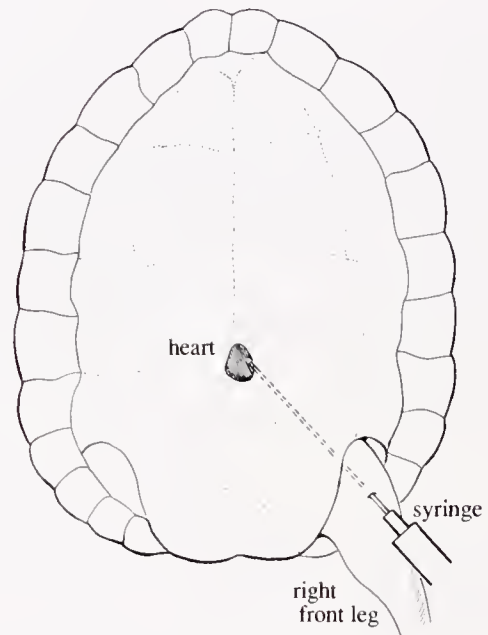


FIG. 1. Method for obtaining blood. h: heart, rfl: right fore-leg, s: syringe.

We have applied this technique in the turtles of the genus *Kachuga*, *K. tentoria* and *K. dhongoka*. These are primarily medium sized turtles with males ranging between 4-8 inches and females between 9-18 inches in length. Presumably this technique can be applied to many other turtles of similar size.

Handling of the turtles, to keep them docile, is the skill of the field worker and no standard procedure can be described for it. However, the turtle has to be suspended in a manner that the head hangs freely downward and the foreleg remains unrestrained. The weight of the body forces the foreleg to stretch, but this may need some time. In this position, the left foreleg can be stretched at an angle of 35° from the head. The skin joining the leg with the

carapace is dabbed with 95% alcohol in order to sterilize the area (Fig. 1).

A 2-inch long 32-gauge hypodermic needle attached to a 5 ml syringe is inserted (as shown in the figure) parallel to the stretched foreleg. The needle is gently inserted until it reaches the ventricle. The depth of the needle penetration is often between 1-1.5 inches. Gentle suction is applied until the blood spurts into the syringe and withdrawal pressure is then slowly increased, until the syringe is at its full suction capacity. The needle is then slowly pulled out, with full syringe suction still being applied. About 2-3 ml of blood is drawn per sample. No pressure is applied for the control of bleeding as no visible bleeding occurs in this procedure. However, germicidal powder is immediately sprinkled at the point of the insertion of the needle, before marking and releasing the turtles.

Blood samples have successfully been collected from over 50 freshwater turtles and several of them have been utilized for repetitive blood lettings and maintained in captivity for over 4 months with no apparent ill-effects. For field sampling, this procedure provides a safe, practical and simple technique for obtaining blood in turtles.

Acknowledgments

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Literature Cited

- AVERY, H. W. AND L. J. VITT. 1984. How to get blood from a turtle. *Copeia* 1984:209-210.
- DUGUY, R. 1970. Numbers of blood cells and their variation. Biology of reptiles. Pp. 93-109. In Gans and Parson (Eds). Academic Press, New York.
- FRYE, F. L. 1991. Biomedical and surgical aspects of captive reptiles husbandry, Vol. 1. Kreiger Publishing Co., Inc., Florida.
- GANDAL, C. P. 1958. Cardiac puncture in anaestized turtles. *Zoologica* 43:93-94.
- MAXWELL, J. H. 1979. Anaesthesia and surgery. Pp. 127-152. In Harless and Morlock (Eds) *Turtles: perspective and research*. John Wiley and Sons, New York.
- POWELL, S. C. AND J. A. KNESEL. 1992. Blood collection from *Macrolemys temminckii* (Troost). *Herpetological Review* 23(1):19.
- STEPHENS, G. A. AND J. S. CREEKMORE. 1983. Blood collection by cardiac puncture in conscious turtles. *Copeia* 1983:522-523.