

APPLICATION OF MINI-FLOTAC TECHNIQUE TO SEA TURTLES FECAL SAMPLES: EVALUATION OF SENSITIVITY AND COMPARISON WITH A TRADITIONAL COPROMICROSCOPIC METHOD

Marchiori E. *, Parisotto N., Zoroaster A., Marcer F.

Dipartimento di Medicina Animale, Produzioni e Salute, Università di Padova, Legnaro, Italy

Keywords: *Caretta caretta*, Mini-FLOTAC, helminthes

INTRODUCTION: The choice of a copromicroscopic technique to be applied on field is led on the one side by practical constraints, especially in terms of time and lab equipment, and on the other hand by the need of accuracy, to select proper treatment protocols on the animals and check their efficacy. The Mini-FLOTAC (MF) has already been employed in sea turtles as well as in other wild species, in that it seems to satisfy both needs (Pace et al., 2019. BMC Vet Res, 15:370). In this study, the sensitivity of MF in sea turtles stool samples is assessed using *post-mortem* isolation of gastrointestinal helminths as a reference test and is compared with a traditional copromicroscopic technique.

MATERIALS AND METHODS: Helminths were recovered from the digestive system of 51 stranded loggerhead sea turtles after necropsy, by a filtration-sedimentation process of gastric and intestinal contents. All helminths were counted and identified at light microscope following keys in literature. Samples of rectal content were stored in 5% formalin, and copromicroscopic exam was performed by both MF and a traditional sedimentation-flotation method (SF), using the same solution (specific gravity = 1.450). Concordance between the results of the two copromicroscopic methods was evaluated with k-value, and the sensitivity (Se) of each method assessed through the comparison with helminths isolation. Finally, the correlation among fecal egg counts (FEC) and helminth burden was calculated through Spearman's rank coefficient.

RESULTS AND CONCLUSIONS: An overall number of 8 helminth taxa were collected from the gastrointestinal system, including the trematodes *Rhytidodes gelatinosus*, *Enodiotrema* sp., *Pachipsolus irroratus*, *Orchidasma amphiorchis*, *Pleurogonius trigonocephalus*, *Calycodes anthos* and the two nematodes *Sulcascaris sulcata* and *Kathlania leptura*. Eggs referable to the same taxa were detected at copromicroscopy, together with eggs of cardiocirculatory flukes (Spirorchiidae eggs type 1 and 3). Concordance among the two copromicroscopic techniques was good to excellent for the ten different taxa (k=0.61-1.00) and the Se for the different taxa was also similar (41-75% for SF, 45-75% for MF). Weak correlation was found between FEC and helminthic burden for all taxa.

The Mini-FLOTAC method showed similar performances to the traditional SF technique in terms of sensitivity, proving at the same time faster to perform without specific lab supplies. Previous studies in which MF was applied to sea turtles stool samples, eggs of Spirorchiidae and nematodes had not been detected. Geographical differences in the epidemiology of these helminthiases must be considered (Santoro et al., 2020. Parasite Vectors, 13:52), nevertheless, the efficiency of different types of flotating solutions should also be further investigated.

As a first assessment on the correlation between FEC and helminth burden, this study suggests to consider anti-helminthic treatments in hospitalized turtles regardless of FEC for pathogenic species such as *S. sulcata*.