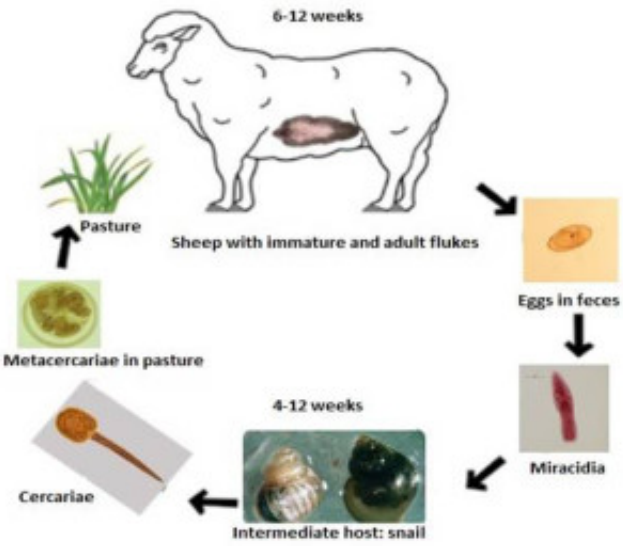
Closantel return

Fasciolosis is a zoonotic parasitic disease of intrahepatic location caused by the liver fluke *Fasciola hepatica*. This trematode affects both animals and humans. It is important because the economic losses are generating billions of dollars annually.



Cycle of Fasciola hepatica

The fluke *Fasciola hepatica* is a cosmopolitan trematode parasite which causes considerable loss in sheep and cattle production systems all over the world). To complete its life cycle, *F. hepatica* requires invariably two hosts, one intermediate (snail) and one final (mammal). In both, parasite populations may increase in number; within the definitive host for oviposition and within the intermediary for the production of redia and cercariae.

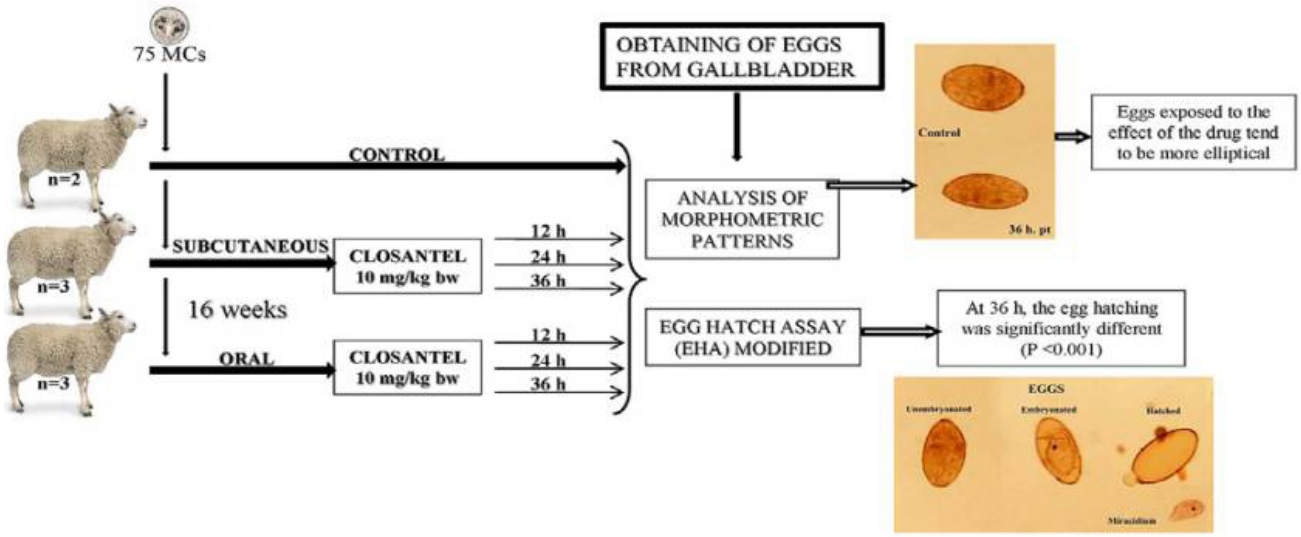
For this endoparasitosis the anthelmintic control is only pharmacological.

In the early 70s the laboratory Janssen presented with great success in the pharmaceutical market a drug was the most used for several years, this was a sanicilanilida anthelmintic known as Closantel ®. Some years later burst into the market, the second generation of the benzimidazole anthelmintics (BZDs) (slightly soluble in aqueous medium), this BZDs are more safe and with high therapeutic index. Within these BZDs, the triclabendazole (TCBZ) is the only anthelmintic with action not only on adult flukes but also on the early immature stages. Given these characteristics, the use of Closantel was replaced and discontinued till the date.

Improper use of these BZDs at present has generated the phenomenon of anthelmintic resistance.

In this emergent situation, other drugs are back used to interleave the treatments with TCBZ to avoid resistance in those animals with resistant parasites. One of them is Closantel. At present it is known that, Closantel only acts on adult parasites but not knowing there *in vivo* effect on eggs of *F. hepatica*.

In this paper was performed a test which shows that Closantel kills not only, adult of *F. hepatica* also takes *in vivo* ovicidal effects.



Graphical Abstract

For this experiment, 8 (eigth) lambs were artificially infected with 200 metacercariae of F. hepatica and 4 months after, when the adult trematode started the egg laying, the lambs were doused with Closantel (10mg/k bw). The lambs were sacrificed in groups, one at 12 hours, another 24 hours and the last group at 36 hours post-treatment.

With eggs obtained from each group, was performed the egg hatch assay. The eggs were incubated at 25 Cº for 15 days in a dark room and were exposed to white light for two hours. Those eggs that are lives, after two hours hatch (break down) and release a stage of worm called miracidie.

This work found that those eggs that had been longer in the lamb after administration of closantel (36 hours) not hatched showed that while Closantel is not ovicidal (because eggs are still eliminating) these eggs are not fertile.

This leaves us thinking that maybe the Closantel is better than was thought ... maybe soon the Closantel returns!!!

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Publication

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