***Evaluation of* schistosomicidal activity of hydnocarpin D, a flavolignan isolated from *Vellozia variabillis* stem.**

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Schistosomiasis is a neglected tropical disease that infects over 200 million people worldwide and it is caused by schistosomes (parasitic trematodes).[1, 2] Its treatment relies only on Praziquantel, a drug which shows toxic side effects, lack of effectiveness against young worms and it may be less useful in the future due to the drug-resistance of schistosomes. Thus, alternative drugs for the treatment are required.[3] The crude ethanolic stem extract from *Vellozia variabillis* (Velloziaceae) has shown *in vitro* schistosomicidal activity against adult worms of *Schistosoma mansoni*. Further, the flavoliganan hydnocarpin D (Figure 1) was isolated from stem extract by chromatographic fractionation plus preparative HPLC; identified by ^{1}H- NMR, ^{13}C - NMR, mass spectrometry methods and also evaluated *in vitro* against *S. mansoni*. Adult worms of *S. mansoni* LE strain were recovered from the mesenteric veins of the infected mice and cultured in 24-well plates at 37°C in RPMI1640 media.[4] Hydnocarpin D was dissolved in 10% DMSO and diluted into the medium to give 12.5, 25, 50, 100 and 200µM. Adult worms were kept for 72 hours and the viability was monitored every 24hours. As negative control were used adult worms treated with 10% DMSO. The biological assay has shown that Hydnocarpin D caused the death of the *S. mansoni* adult worms (100% at 200 and 100µM, and 75% at 50µM after 48hours; 100% at 25 µM after 72 hours) and reduced the motor activity significantly of 100% of the adult worms (25, 50, 100, 200µM after 24hours and at 12,5µM after 72 hours). It was also registered a partial tegument alteration at 50, 100 and 200µM. Hydnocarpin D showed good results and can be a good choice to futures studies for the seeking of alternative drugs to schistosomiasis treatment.

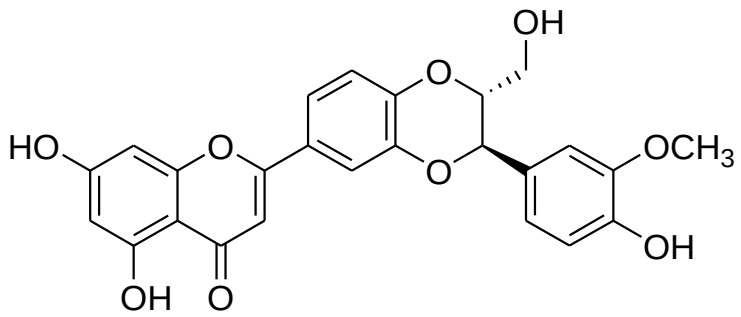

***Figure 1**: Chemical structure of Hydnocarpin D*

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Keywords: *Schistosoma mansoni,* hydnocarpin D, *Vellozia variabillis*

References:

[1] Steinmann P, Keiser J, Bos R, Tanner M, Utzinger J. Schistosomiasis and water resources development: systematic review, meta-analysis, and estimates of people at risk. Lancet Infect Dis 2006, 6: 411–425.

[2] Faghiri Z et al. The Tegument of the Human Parasitic Worm Schistosoma mansoni as an Excretory Organ: The Surface Aquaporin SmAQP Is a Lactate Transporter. PLoS ONE 2010 5(5): e10451. doi:10.1371/journal.pone.0010451

[3] Doenhoff MJ, Cioli D, Utzinger J. Praziquantel: mechanisms of action, resistance and new derivatives for schistosomiasis. Cur Opn Infect Dis 2008, 21:659-667.

[4] Smithers SR, Terry RJ. The infection of laboratory hosts with cercarie of *Schistosoma mansoni* and recovery of the adult worms. Parasitol 1965, 55: 696-700.