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

Lúzio G B Flauzino, Marcos G Tozatti, Dailane F G Sampaio, Fernando R Badoco, Ana H Januário, Patrícia M Pauletti, Márcio L A Silva, Lizandra G Magalhães and Wilson R Cunha
Universidade de Franca, Brazil

Schistosomiasis is neglected tropical disease that infects over 200 million people worldwide and it is caused by schistosomes (parasitic trematodes). 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. 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 ¹H- NMR, ¹³C-NMR, mass spectrometry methods and evaluated in vitro against *S. mansoni*. Adult worms of *S. mansoni* LE strain was recovered from the mesenteric veins of the infected mice and cultured in 24-well plates at 37°C in RPMI1640 media. Hydnocarpin D was dissolved in 10% DMSO and diluted into the medium to give 12.5, 25, 50, 100 and 200 µM. Adult worms were kept for 72 hours and the viability was monitored every 24 hours. As negative control was 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 100 µM, and 75% at 50 µM after 48 hours; 100% at 25 µM after 72 hours) and reduced the motor activity significantly of 100% of the adult worms (25, 50, 100, 200 µM after 24 hours 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.

Biography

Lúzio G B Flauzino has completed his Graduation in Industrial Chemistry from the University of Franca (year 2011). During his graduation, he undertook a scientific initiation phase with the group of Natural Products (GPNUF) developing the project- Molecules of interest: isolation, identification, structural modifications and evaluation in several biological tests with FAPESP technical training grant (Proc. FAPESP (Proc. No. 2014 / 08404-6), which develops the project phytochemical studies of Villa elliptica and Vellozia variabilis and evaluation in tests against neglected tropical diseases.

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