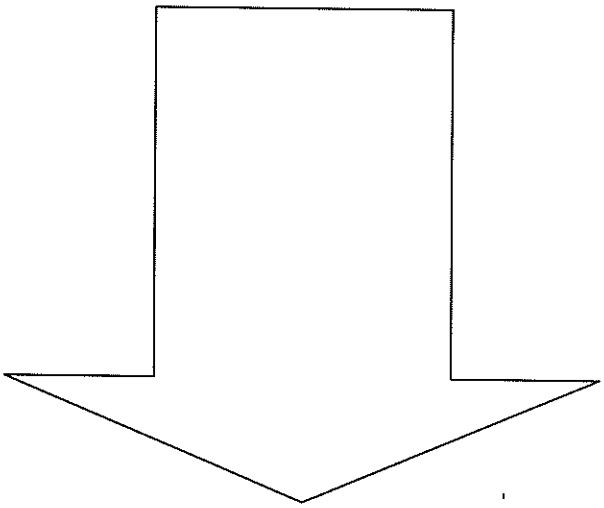


Results

Results

In the present work, we studied the effect of mefloquine on the tegument of juvenile and adult *S.mansoni* worms by scanning electron microscopy. Mice were infected with *S.mansoni* cercaria and mefloquine was given at 21 and 49 days post infection .Perfusion was done two, three and seven days post treatment.

Total worm burden study :

The percentage of total worm burden was reduced in juvenile .Two days post treatment, it was reduced by 75.9%, while three days post treatment it was reduced by 81.6% and the percentage of total worm burden reduction in juvenile *S. mansoni* infection one week post treatment was 95.8%. Statistically, there was significant differences between control(untreated) group and perfused groups two days , three days and seven days post treatment($P< 0.001$). There was also statistically significant differences between perfused group two days and perfused group seven days post treatment ($P< 0.05$) table(1).

In mature infection the total worm burden was reduced. Two days post treatment the percentage of total worm burden reduction was 44.9%, while three days post treatment it was 58.2% and seven days post treatment it was 72.8% . Statistically, there was significant differences between control group and perfused group 2 days, 3 days and 7 days post treatment, ($P< 0.001$) ,also there was statistically significant differences between perfused group 2 days and perfused group for 7 days post treatment($P= 0.001$) table(2).

Table (1) shows the effect of a single 400 mg/kg oral dose of mefloquine administered to mice harboring a 21-day-old *S. mansoni* infection on the total worm burden . Two days post treatment, the percentage of total worm burden reduction was 75.9%, while three days post treatment it was 81.6% and the percentage of total worm burden reduction in juvenile *S. mansoni* infection one week post treatment was 95.8%. Statistically, there was significant differences between control(untreated) group and perfused groups 2 days , 3 days and 7 days post treatment, also there was statistically significant differences between perfused group 2 days and perfused group 7 days post treatment

Table (1)

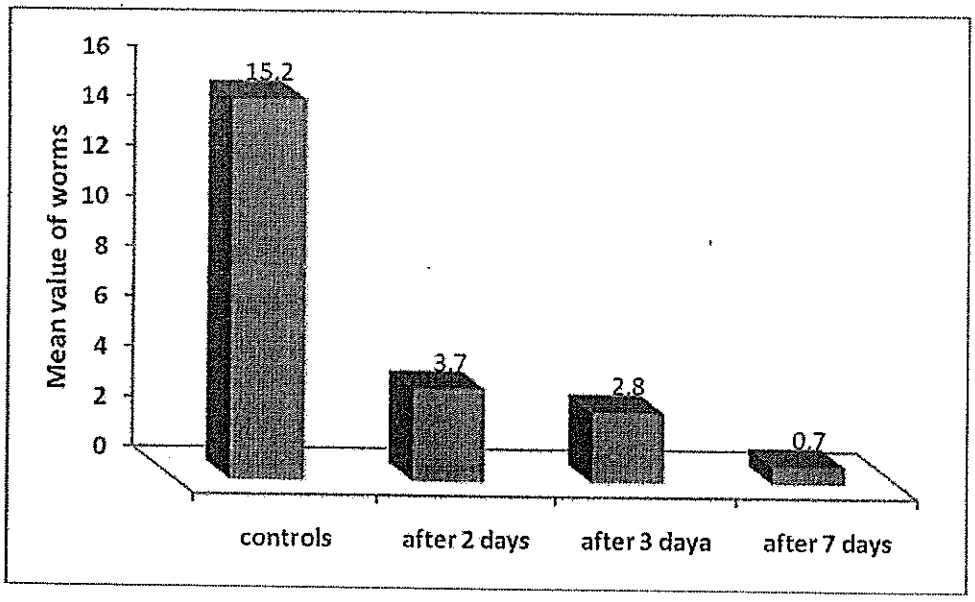
Effect of a single 400 mg/kg oral dose of mefloquine administered to mice harboring a 21-day-old *S. mansoni* infection on total worm burden .

Point of analysis Groups	N Mice= 37	X`±SD	% Of total worm burden reduction	Post hoc&p value
Control	**20**	**15.2±1.8**		control group &perfused group 2 days post treatment < 0.001
2 days post treatment	**6**	**3.7±0.8**	**75.9**	control group & perfused group 3 days post treatment < 0.001
3 days post treatment	**5**	**2.8±1.9**	**81.6**	control group & perfused group for 7 days post treatment< 0.001
7 days post treatment	**6**	**0.7±0.5**	**95.8**	perfused group for 2 days & 7days post treatment< 0.05

Anova=205.6 **P**< 0.001

Graph (1)

Effect of a single 400 mg/kg oral dose of mefloquine on mean number of juvenile worms of *S. mansoni*.



Table(2) shows the effect of a single 400 mg/kg oral dose of mefloquine administered to mice harboring a 49-day-old adult *S. mansoni* infection on worm burden. two days post treatment was the percentage of total worm burden reduction 44.9%, while three days post treatment was 58.2% and seven days post treatment was 72.8% . Statistically, there was significant differences between control group and perfused group 2 days, 3 days and 7 days post treatment,also there was statistically significant differences between perfused group 2 days and perfused group for 7 days post treatment.

Table(2) Effect of a single 400 mg/kg oral dose of mefloquine administered to mice harboring a 49-day-old adult *S. mansoni* infection on worm burden

Point of analysis Groups	N Mice=35	X`±SD	%Of total worm burden reduction	Post hoc&p value
Control	**20**	**15.8±1.1**		control group &perfused group 2 days post treatment < 0.001
2 days post treatment	**6**	**8.7±2.6**	**44.9**	control group& perfused group 3 days post treatment< 0.001
3 days post treatment	**5**	**6.6±1.8**	**58.2**	control group & perfused group 7days post treatment < 0.001
7 days post treatment	**4**	**4.3±1.5**	**72.8**	perfused group2 days& perfused **group 7days** post treatment **=0.001**

Anova =101.1

P < 0.001

Graph (2)

Effect of a single 400 mg/kg oral dose of mefloquine on mean number of mature worms.

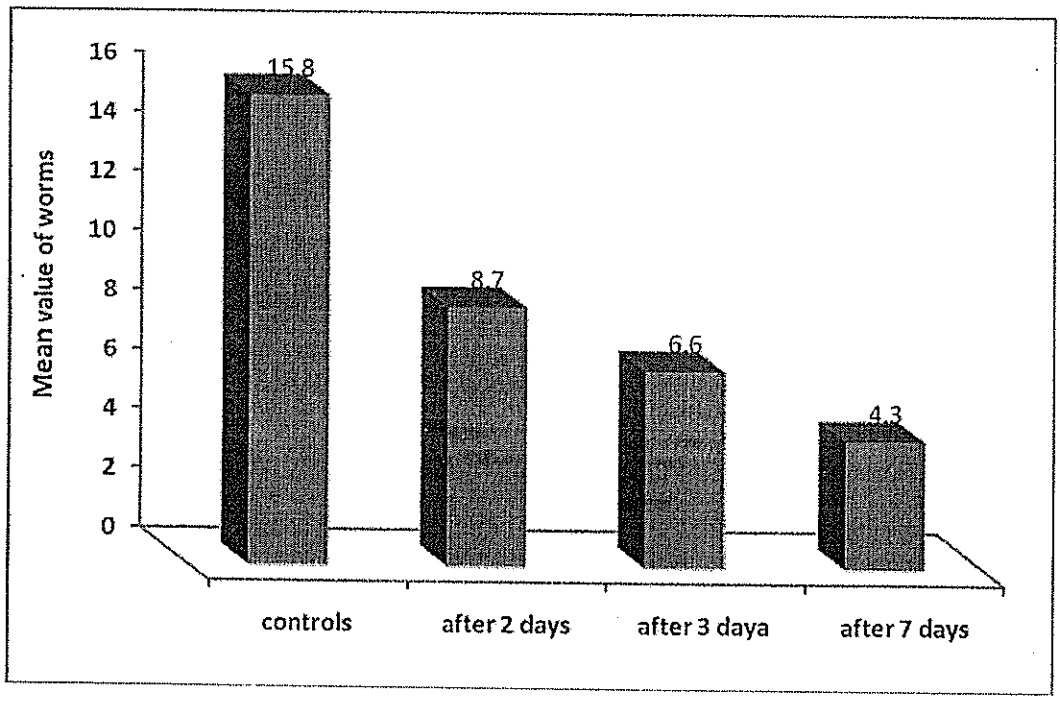


Figure 8: Scanning electron micrograph (SEM) of control *S. mansoni* schistosomule (X150).

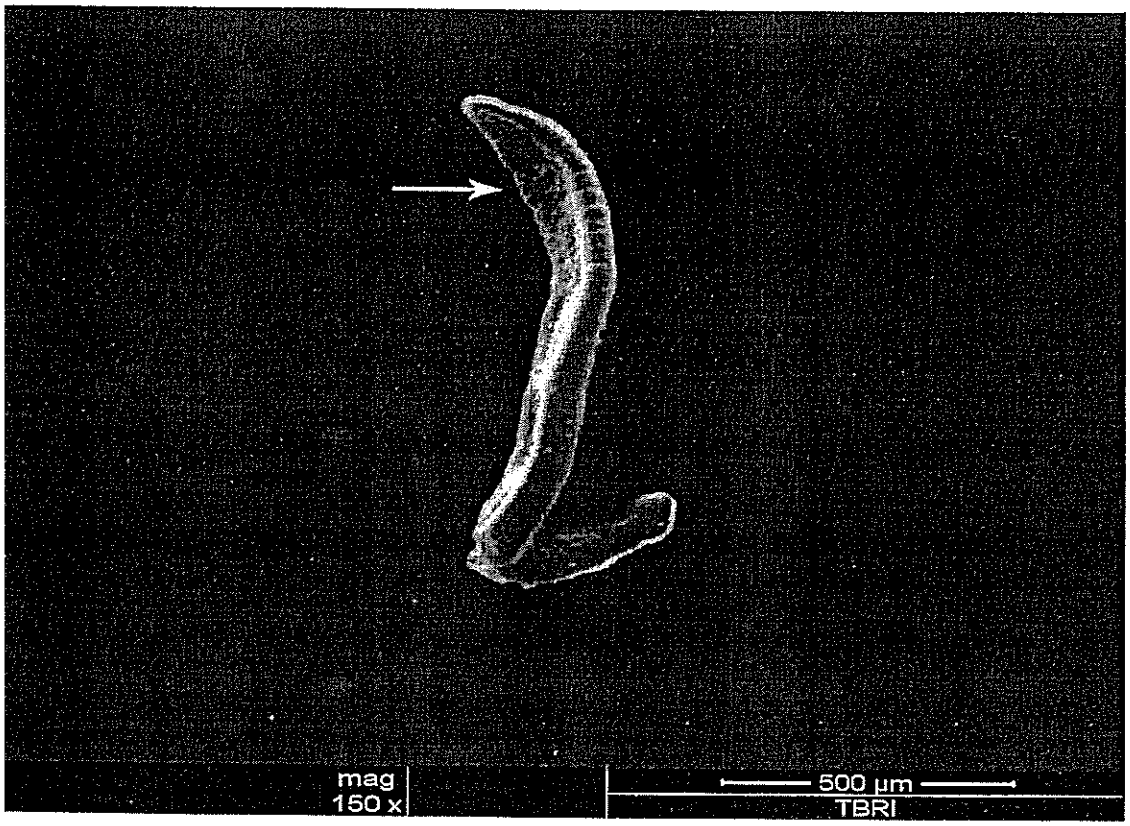


Figure 9: Scanning electron micrograph (SEM) of control *S. mansoni* schistosomule showing tegumental ridges of the dorsal surface. (X1600).

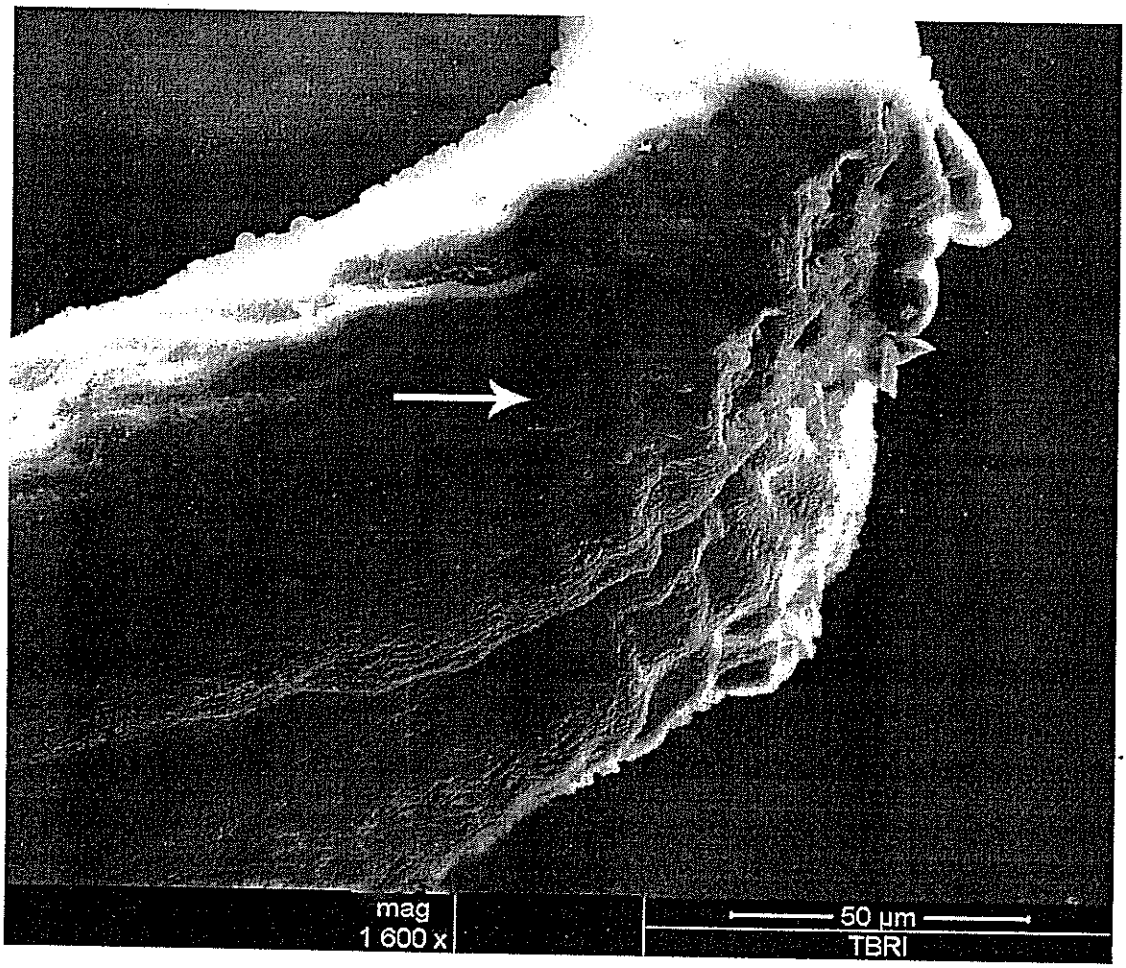


Figure 10 : Scanning electron micrograph (SEM) of control *S. mansoni* schistosomule showing regular &smooth ventral sucker. (X2400).

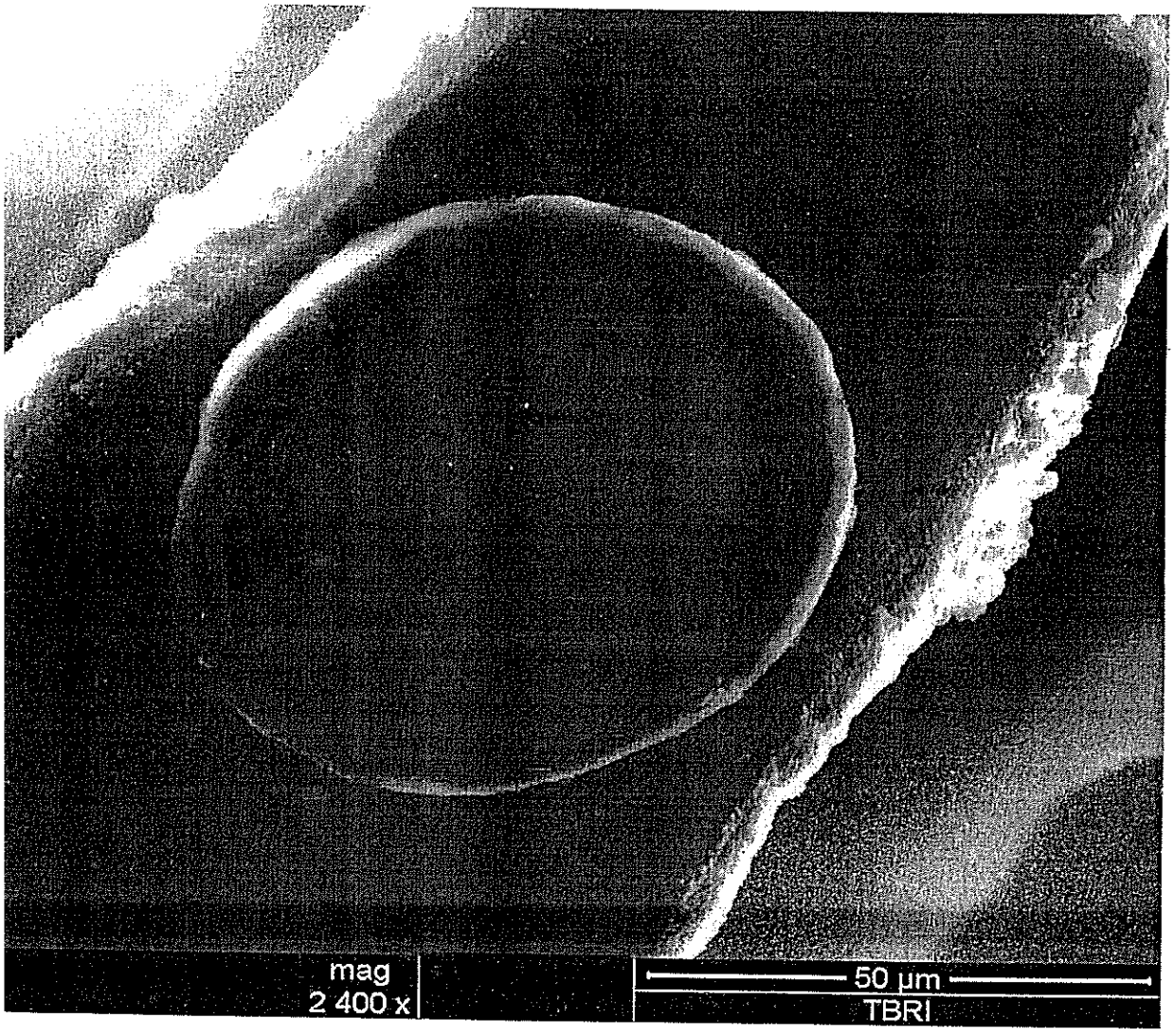


Figure 11: Scanning electron micrograph (SEM) of control *S. mansoni* schistosomule showing regular &smooth oral sucker. (X2500).

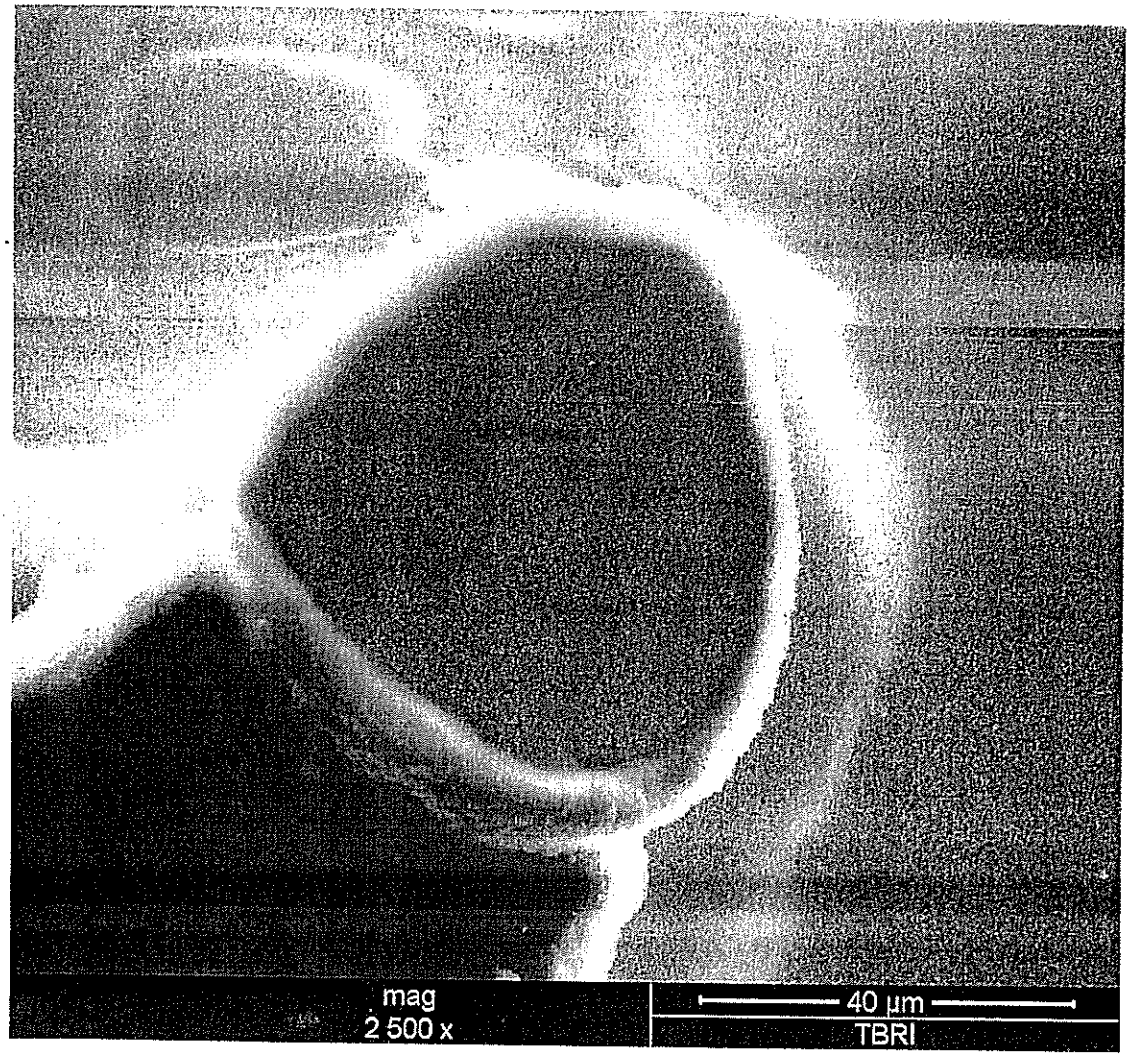


Figure 12: Scanning electron micrograph (SEM) of *S. mansoni* schistosomule two days post treatment showing retracted ventral sucker &fusion of tegumental ridges.(X2000).

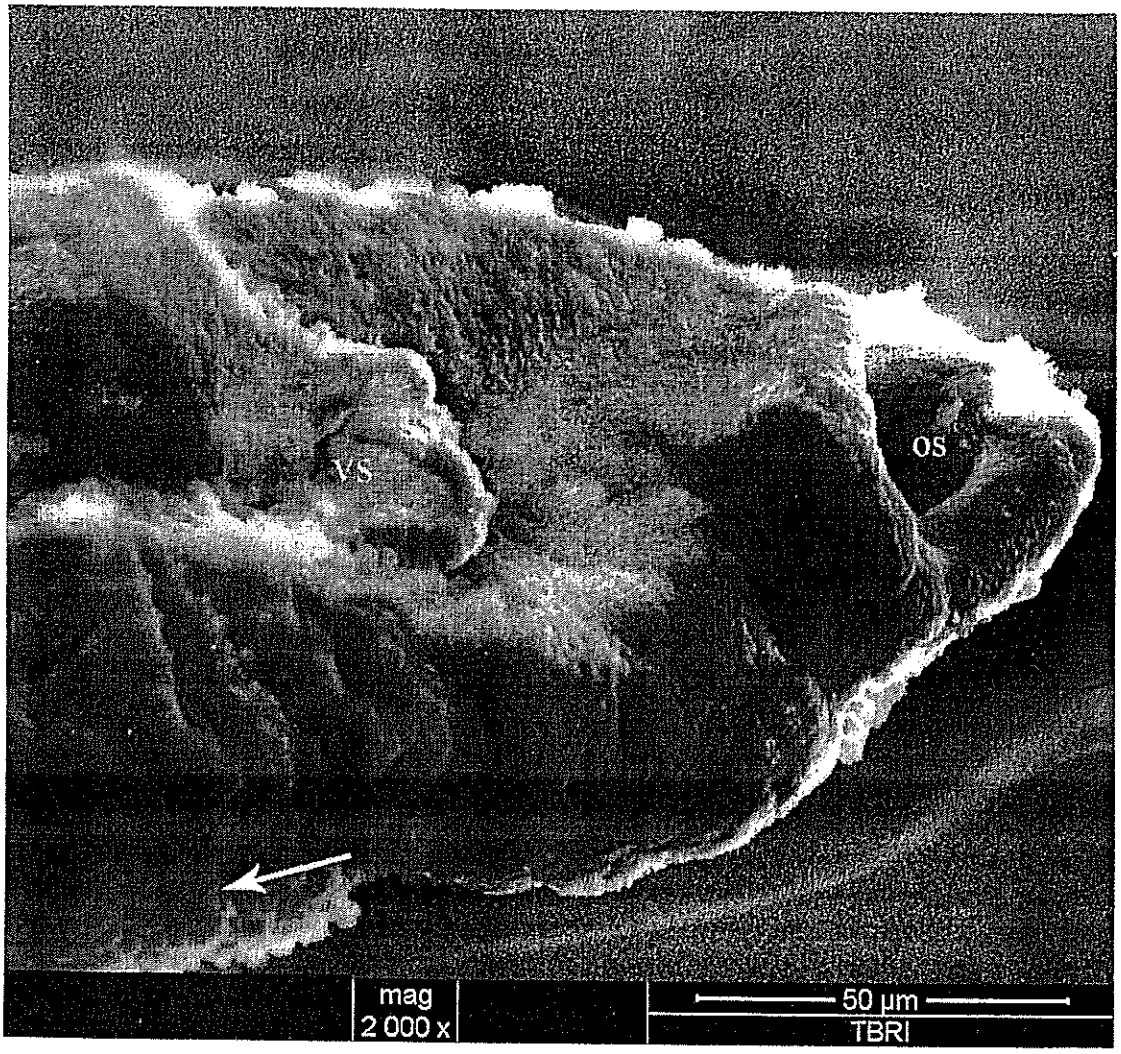


Figure 13: Scanning electron micrograph (SEM) of *S. mansoni* schistosomule three days post treatment showing corrugation of the tegument (X600).

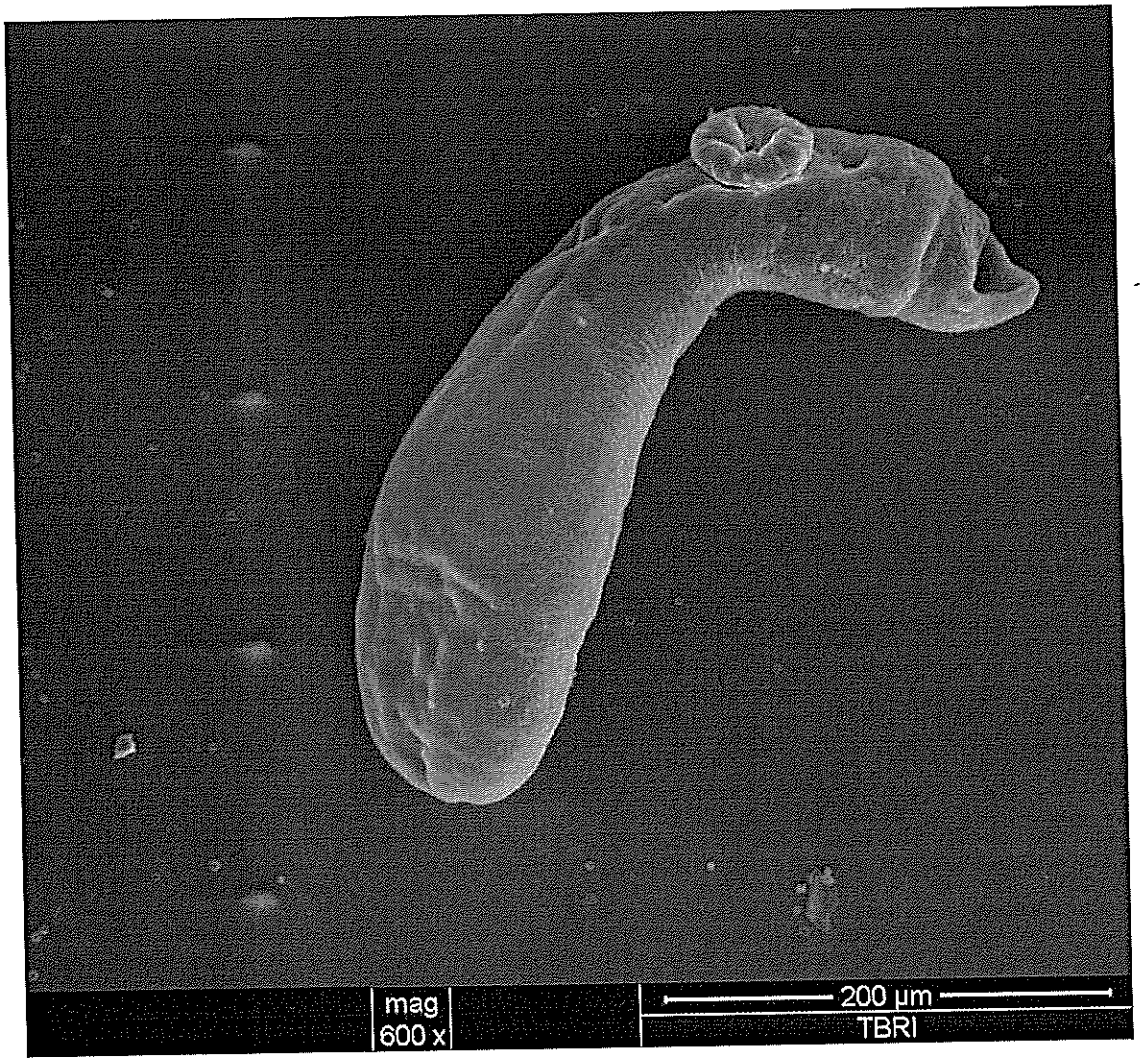


Figure 14: Scanning electron micrograph (SEM) of *S. mansoni* schistosomule three days post treatment showing retracted oral sucker (X1600).

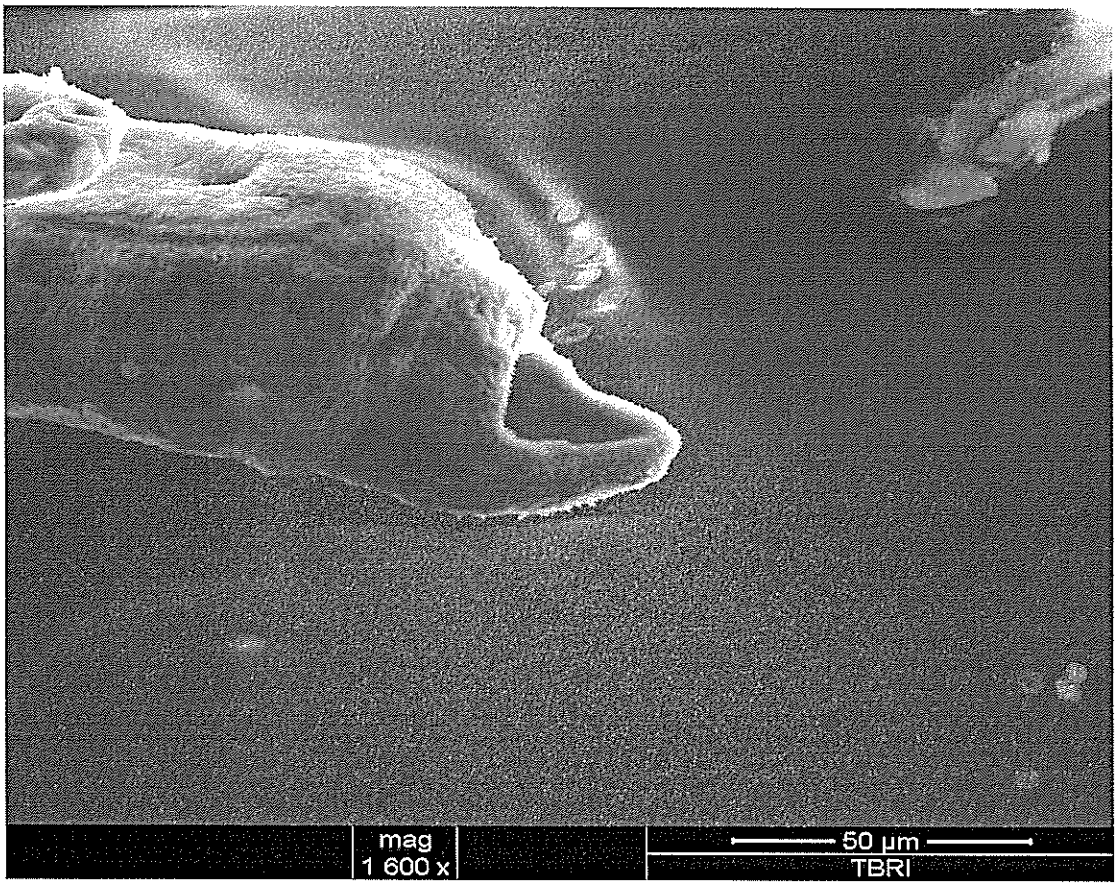


Figure 15: Scanning electron micrograph (SEM) of perfused *S. mansoni* schistosomule three days post treatment showing pitting of the tegument.(X5000).

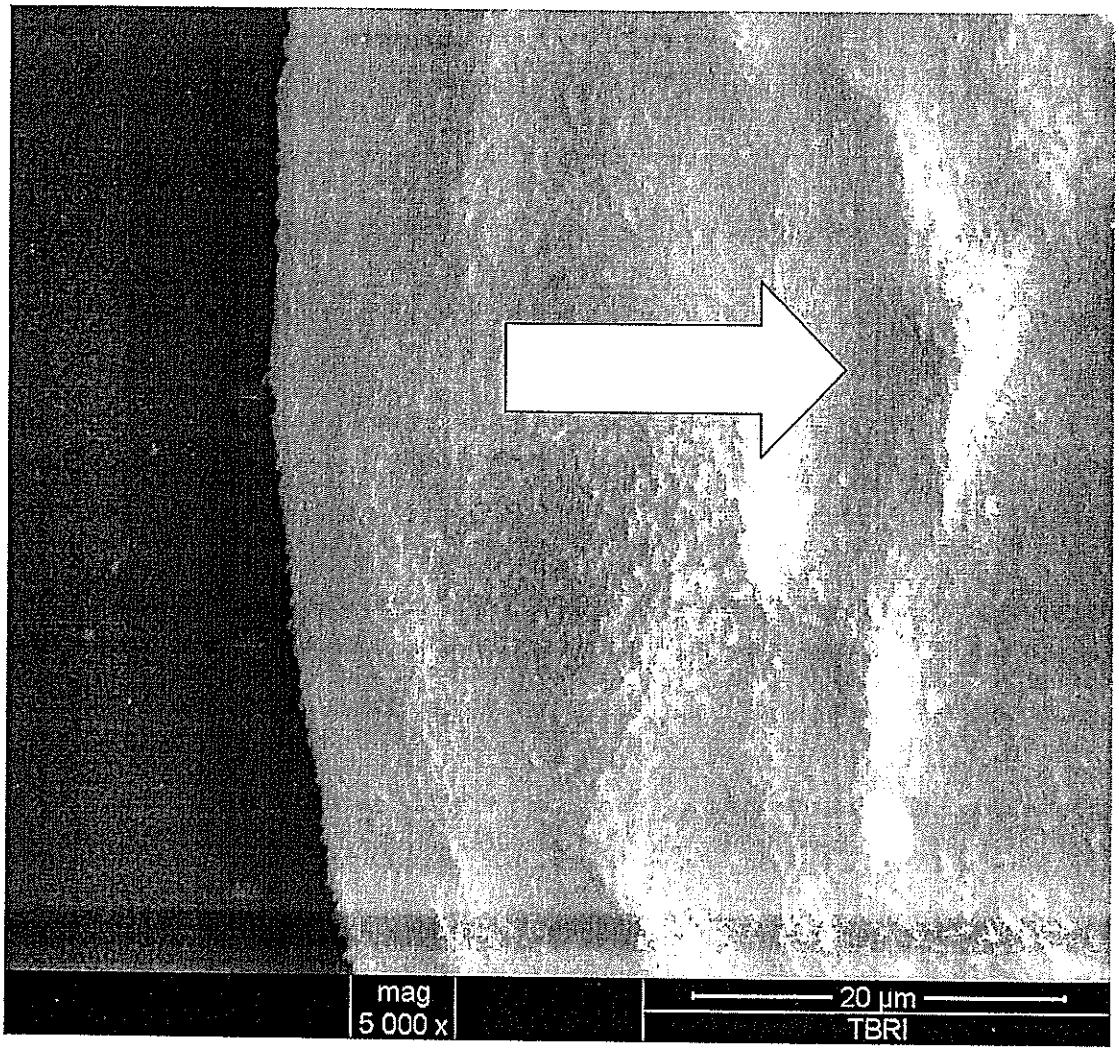


Figure 16 : Scanning electron micrograph (SEM) of *S.mansoni* schistosomule seven days after treatment showing swelling of the tegument in parts and shrinkage in the other parts . (X800).

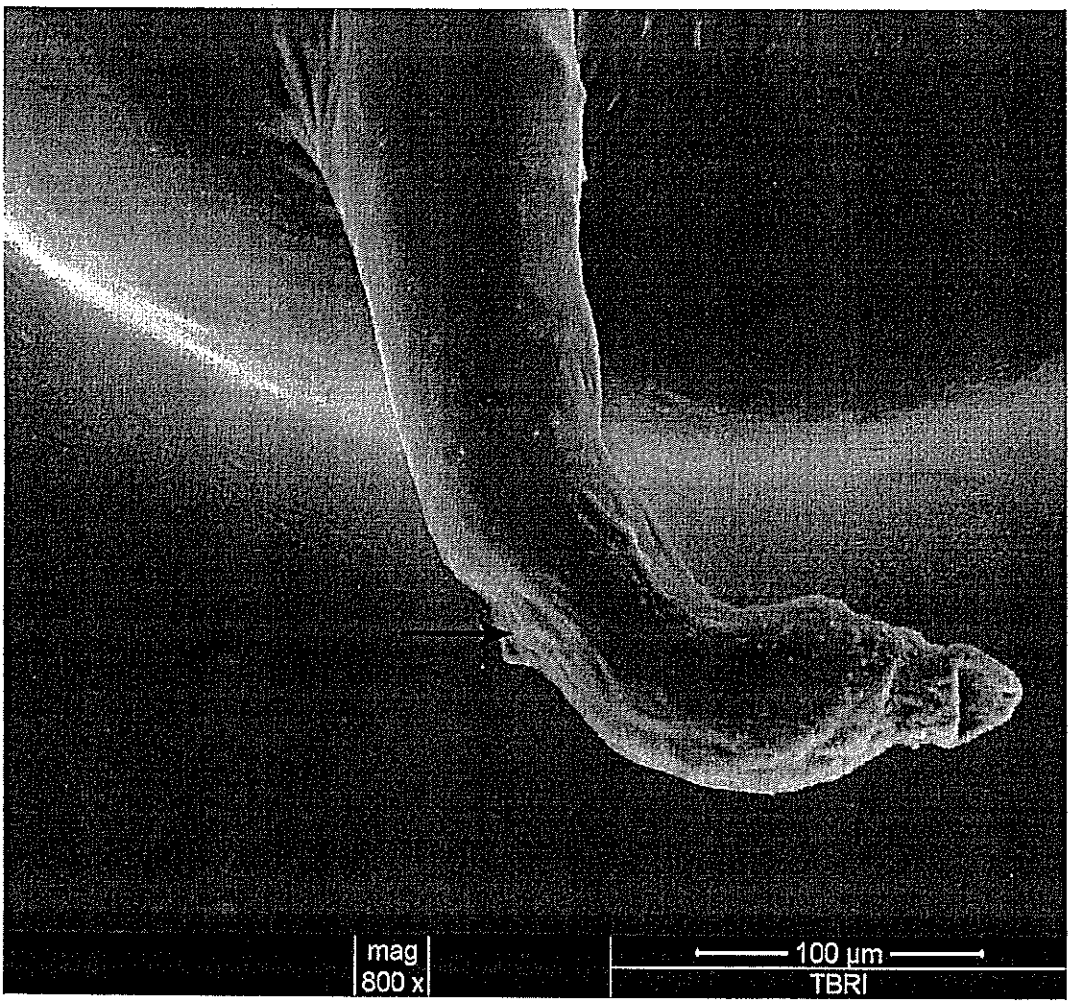


Figure 17: Scanning electron micrograph (SEM) of *S. mansoni* schistosomule seven days post treatment showing retracted oral sucker (X6000).

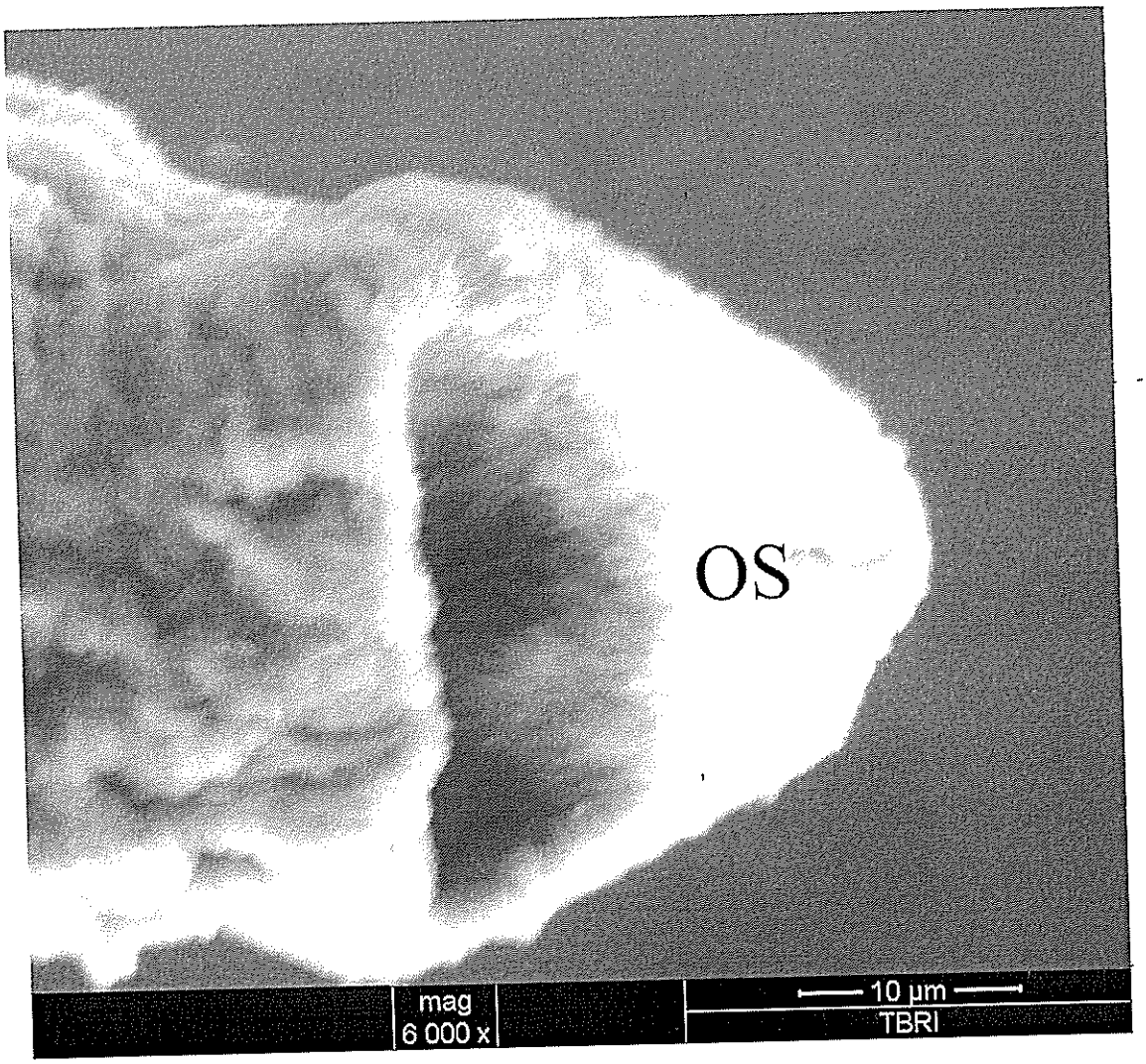


Figure 18: Scanning electron micrograph (SEM) of *S. mansoni* schistosomule seven days after treatment showing furrows on the tegument . (X2400).

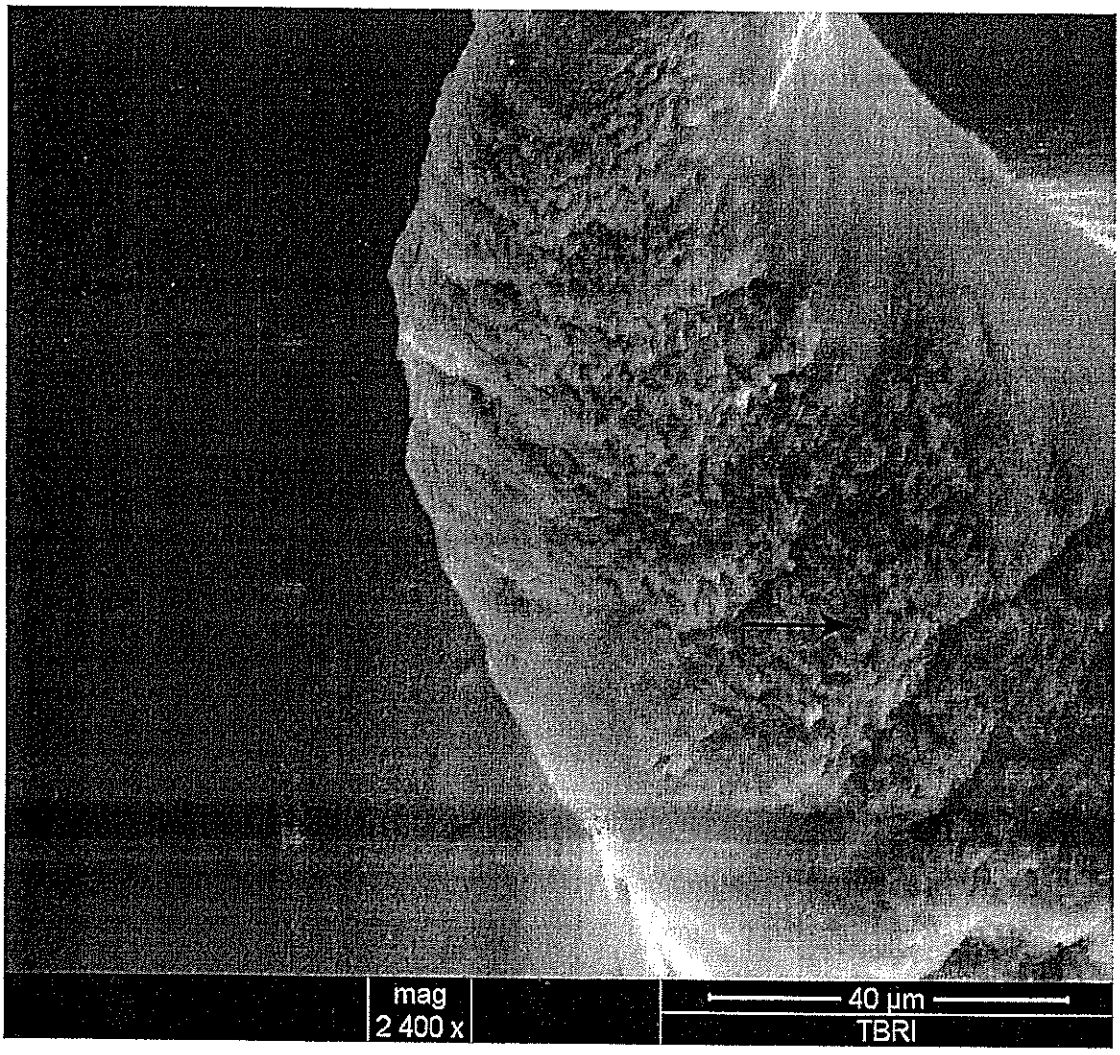


Figure 19: Scanning electron micrograph (SEM) of treated *S. mansoni* schistosomule after seven days showing swellings on the tegument (X6000)..

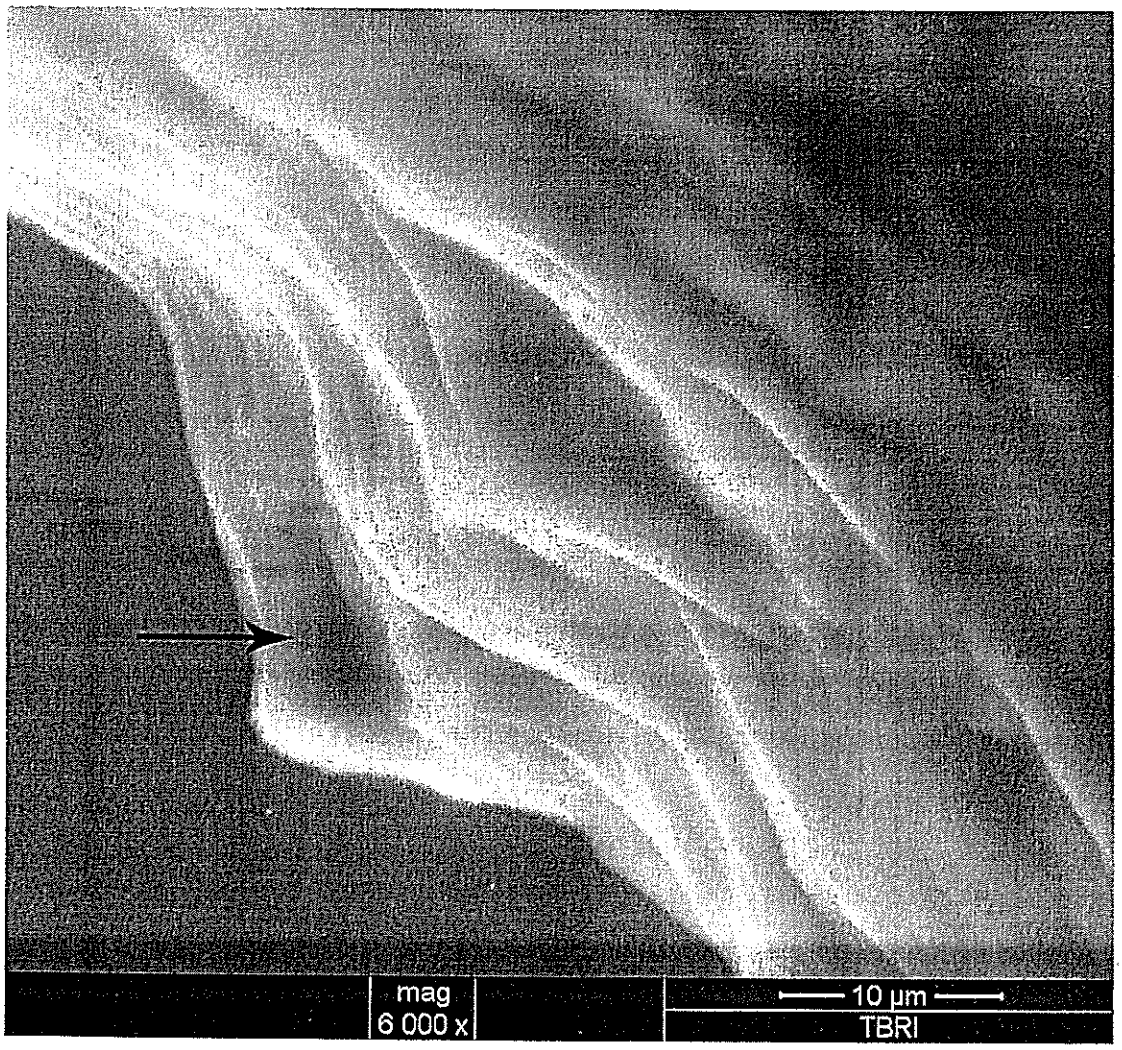


Figure20 : Scanning electron micrograph (SEM) of *S. mansoni* untreated (control) male and female with normal intact tubercles on tegument (Tg)of male (X120).

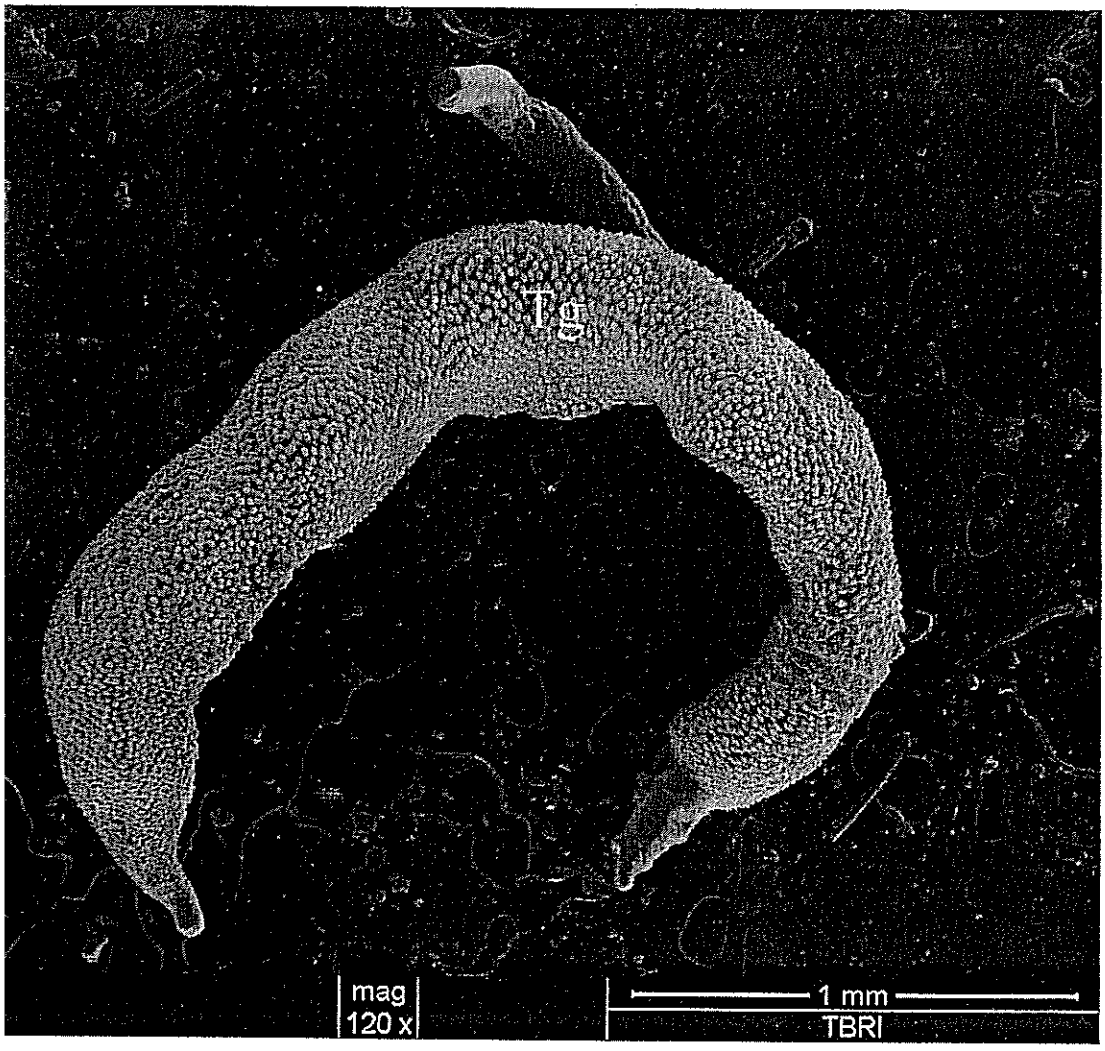


Figure21 : Scanning electron micrograph (SEM) of S. mansoni untreated male showing intact oral sucker (OS), intact ventral sucker (VS) with tyre like appearance, and intact tegument with normal tubercles (T) on its dorsal surface. (X800)

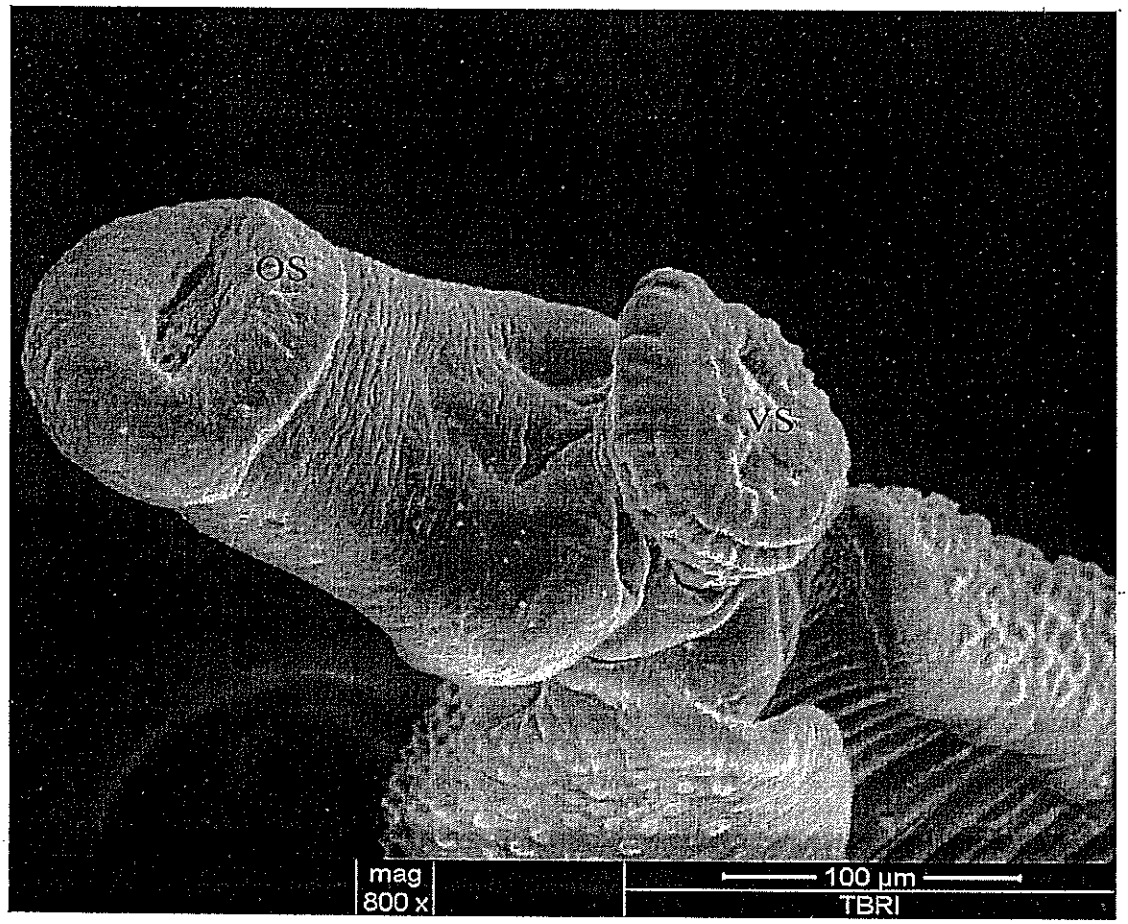


Figure 22: Scanning electron micrograph (SEM) of *S. mansoni* untreated male showing intact tegument with normal tubercles (T) covering its surface. Tubercles are covered with numerous intact apically directed spines(S) with normal intertubercular spaces in between. (X3000)

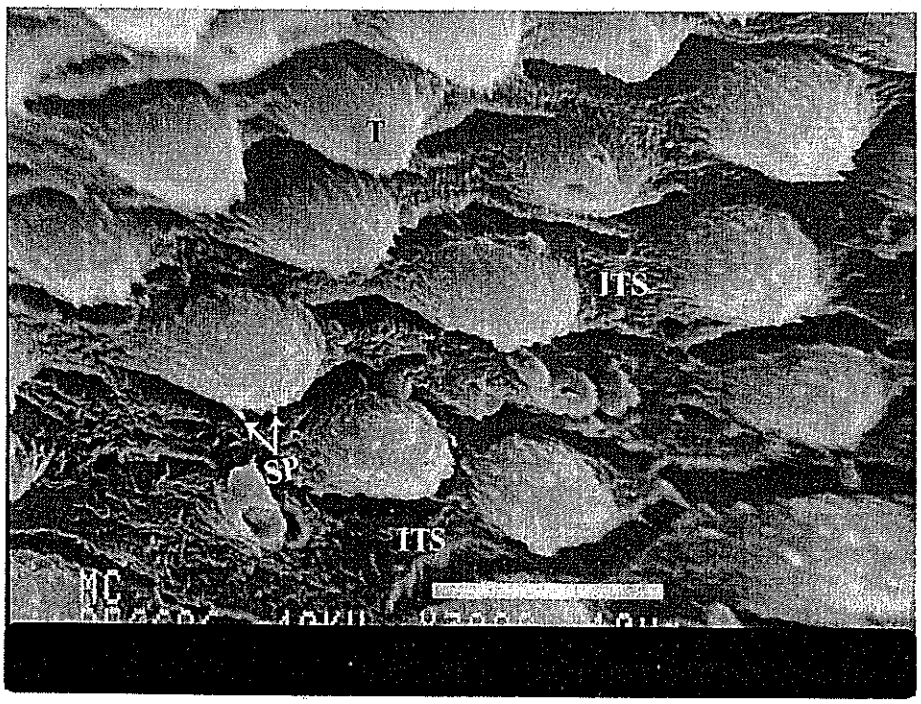


Figure 23: Scanning electron micrograph (SEM) of *S. mansoni* male after 2 days with mefloquine showing disruption and peeling of the tegument with loss of spines (SP).(X1200)

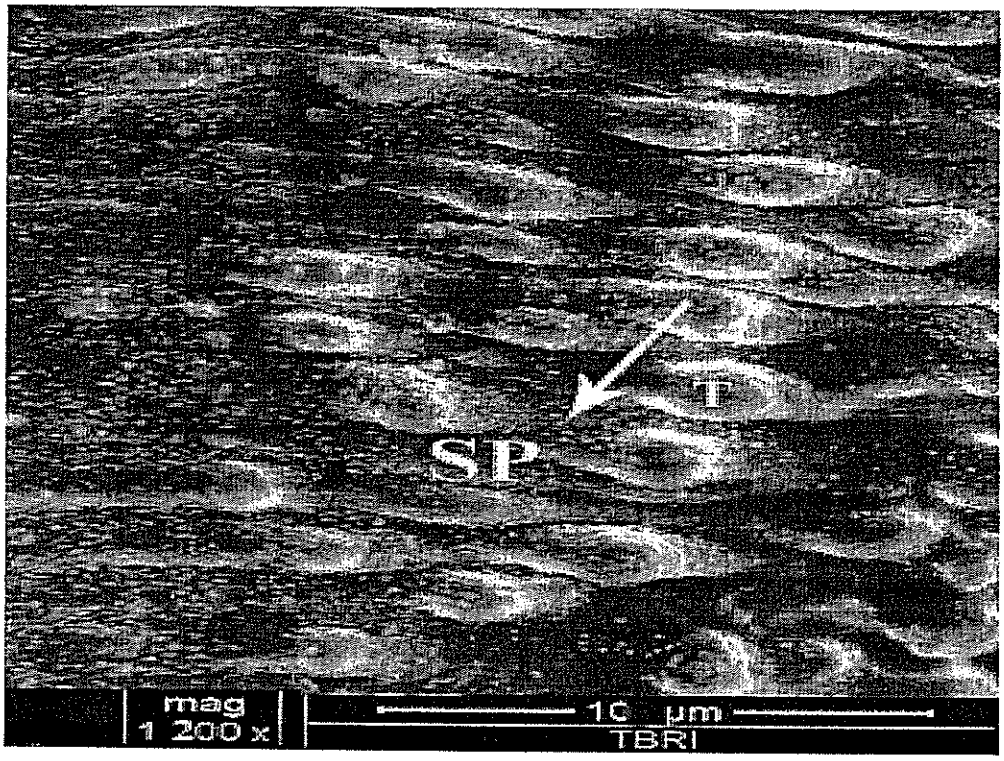


Figure 24: Scanning electron micrograph (SEM) of *S. mansoni* male after 2days with mefloquine treatment showing disruption and peeling of the tegument with loss of spines (SP).(X1120)

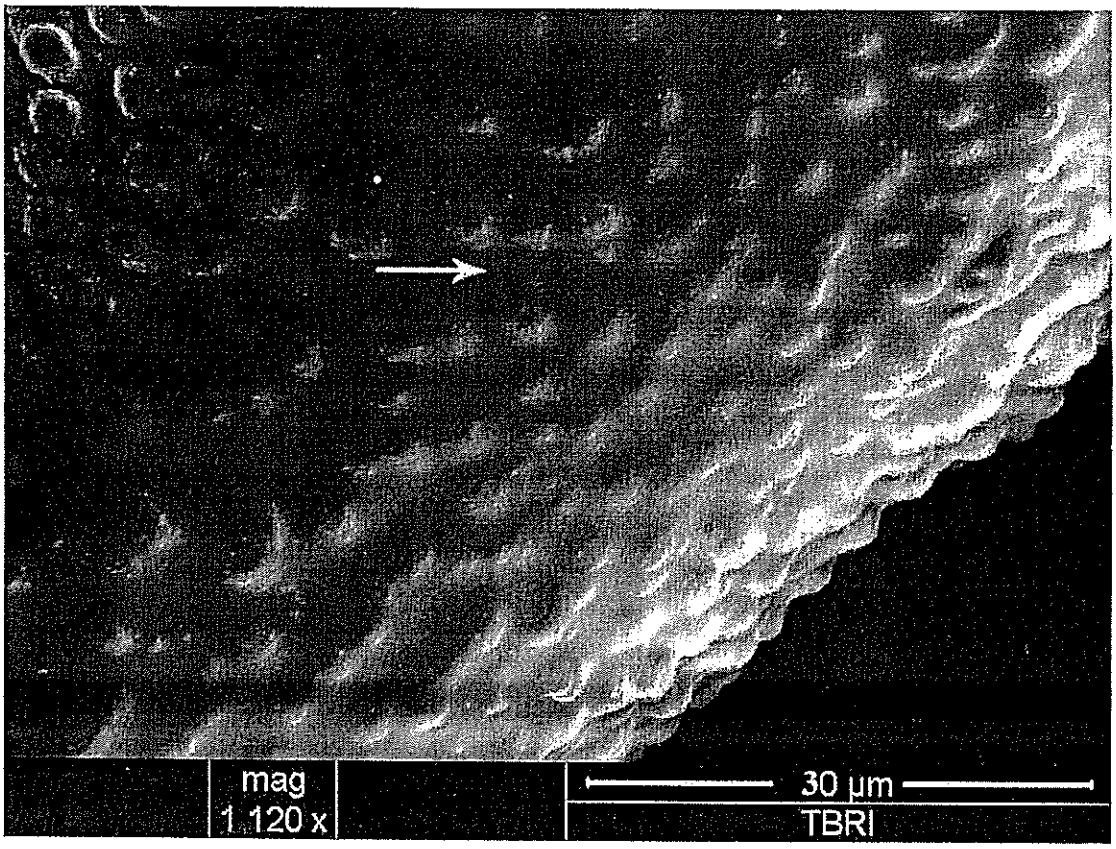


Figure 25: Scanning electron micrograph (SEM) of *S. mansoni* male after 2 days with mefloquine treatment showing disruption and peeling of the tegument with loss of spines and flattening of the ventral sucker(vs) (X600).

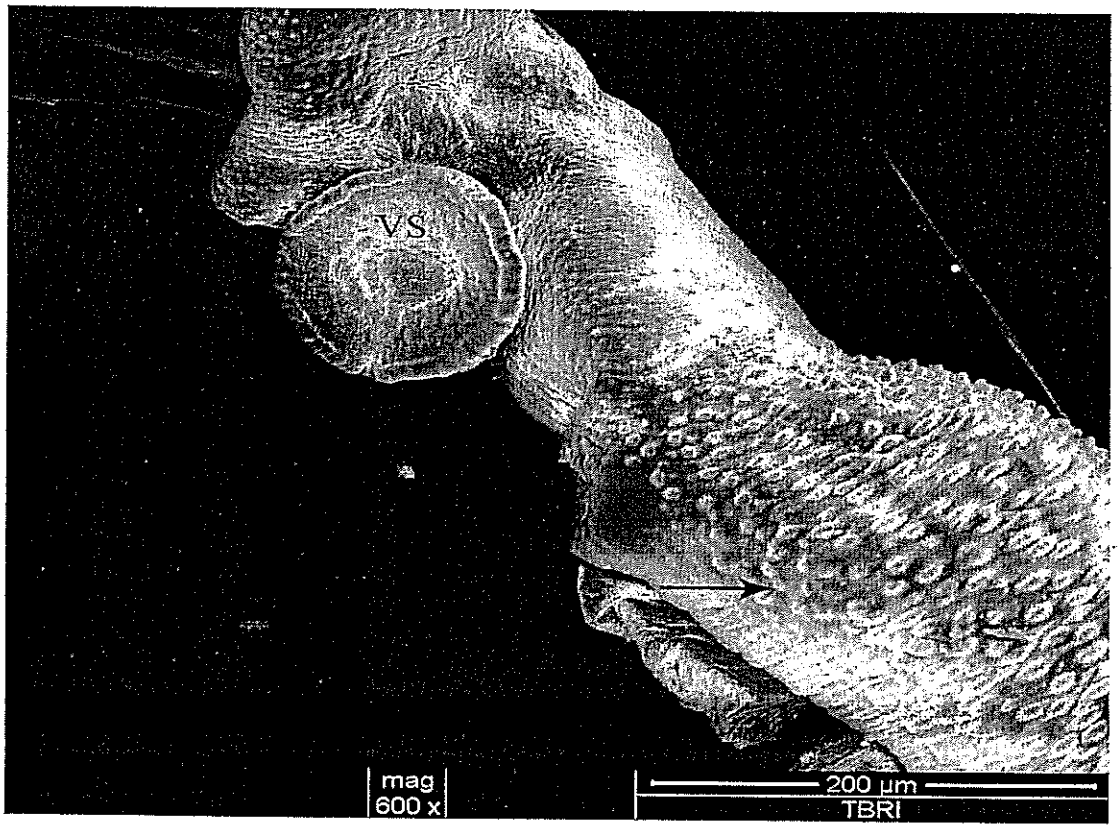


Figure 26: Scanning electron micrograph (SEM) of *S. mansoni* male after 2days with mefloquine treatment showing deformity of the oral sucker(os)(X1000).

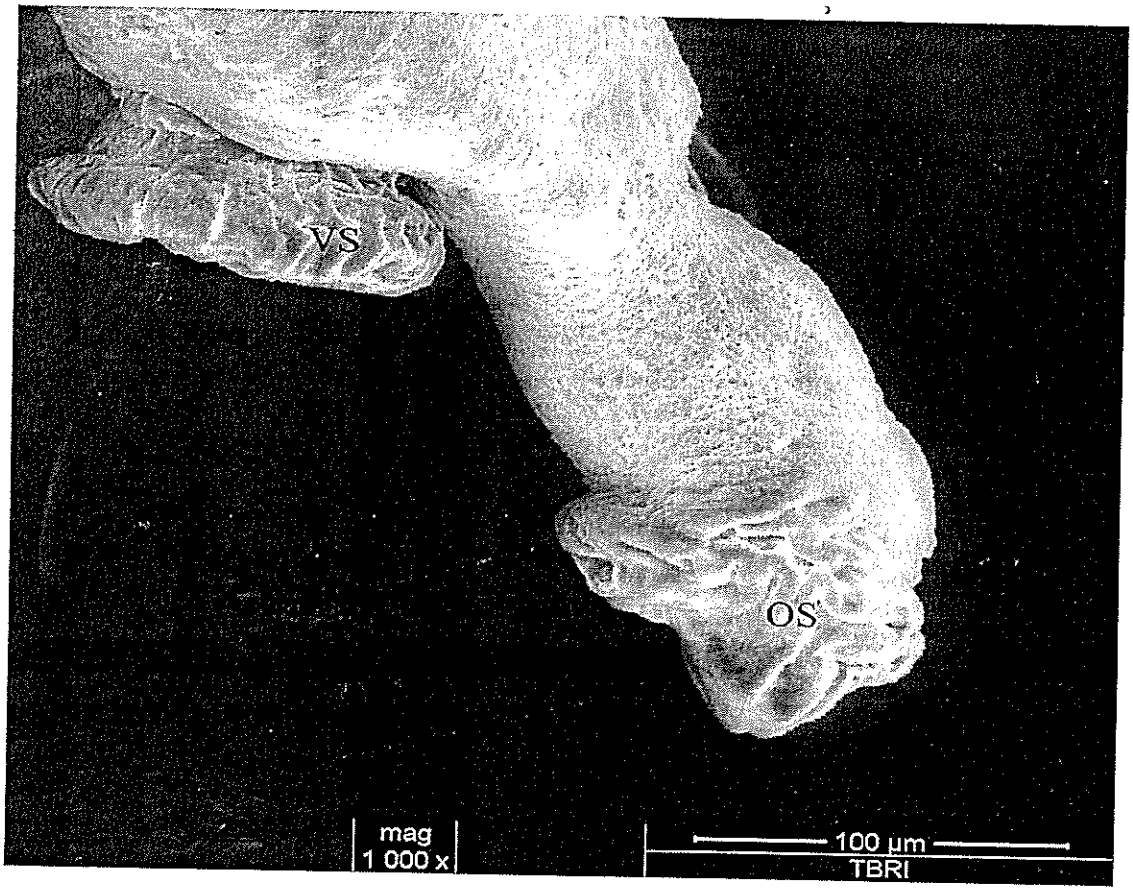


Figure 27 :Scanning electron micrograph (SEM) of *S. mansoni* female after 2 days with mefloquine treatment showing shedding of the tegument from the basement membrane(X1200) .

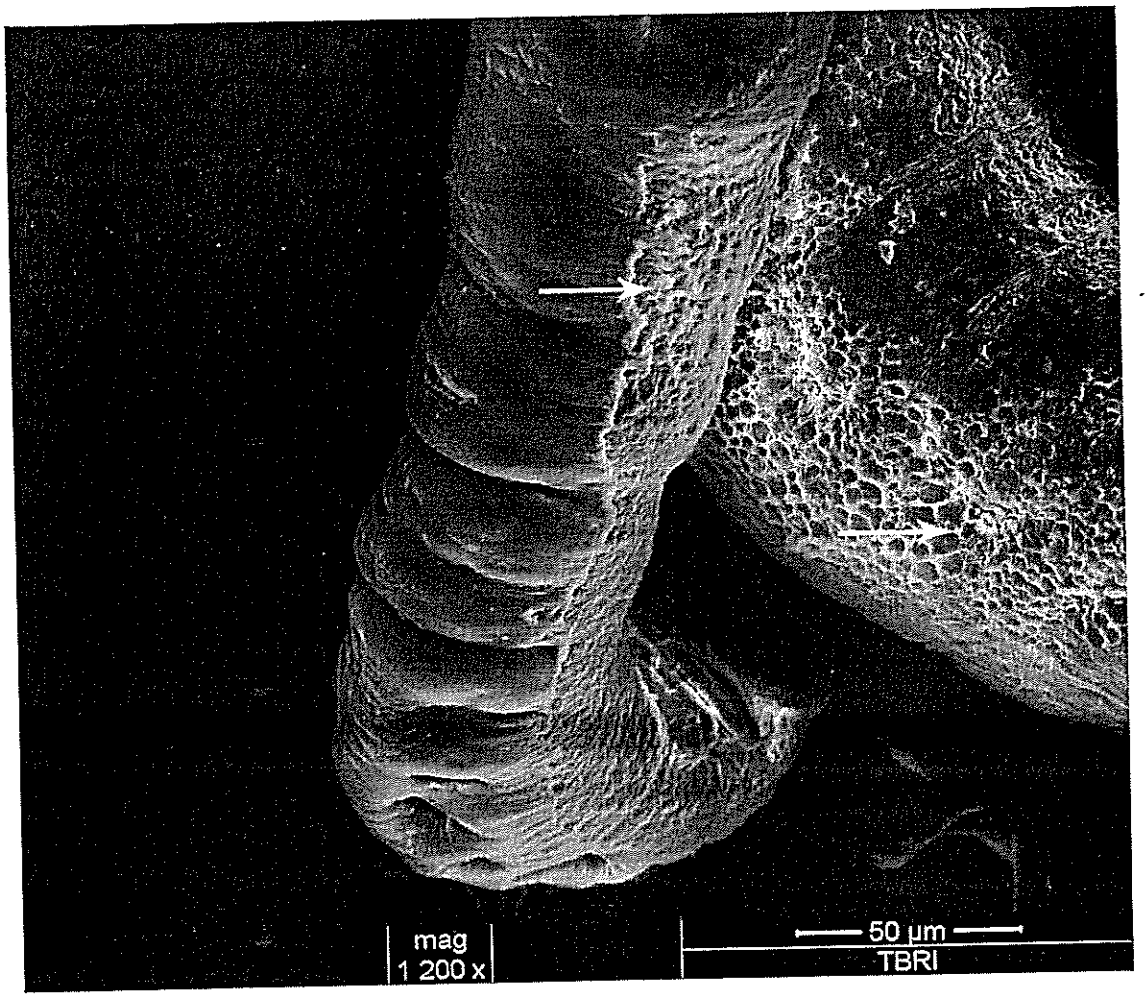


Figure 28: Scanning electron micrograph (SEM) of *S. mansoni* female two days post mefloquine treatment showing disruption and peeling of the tegument (X1600) .

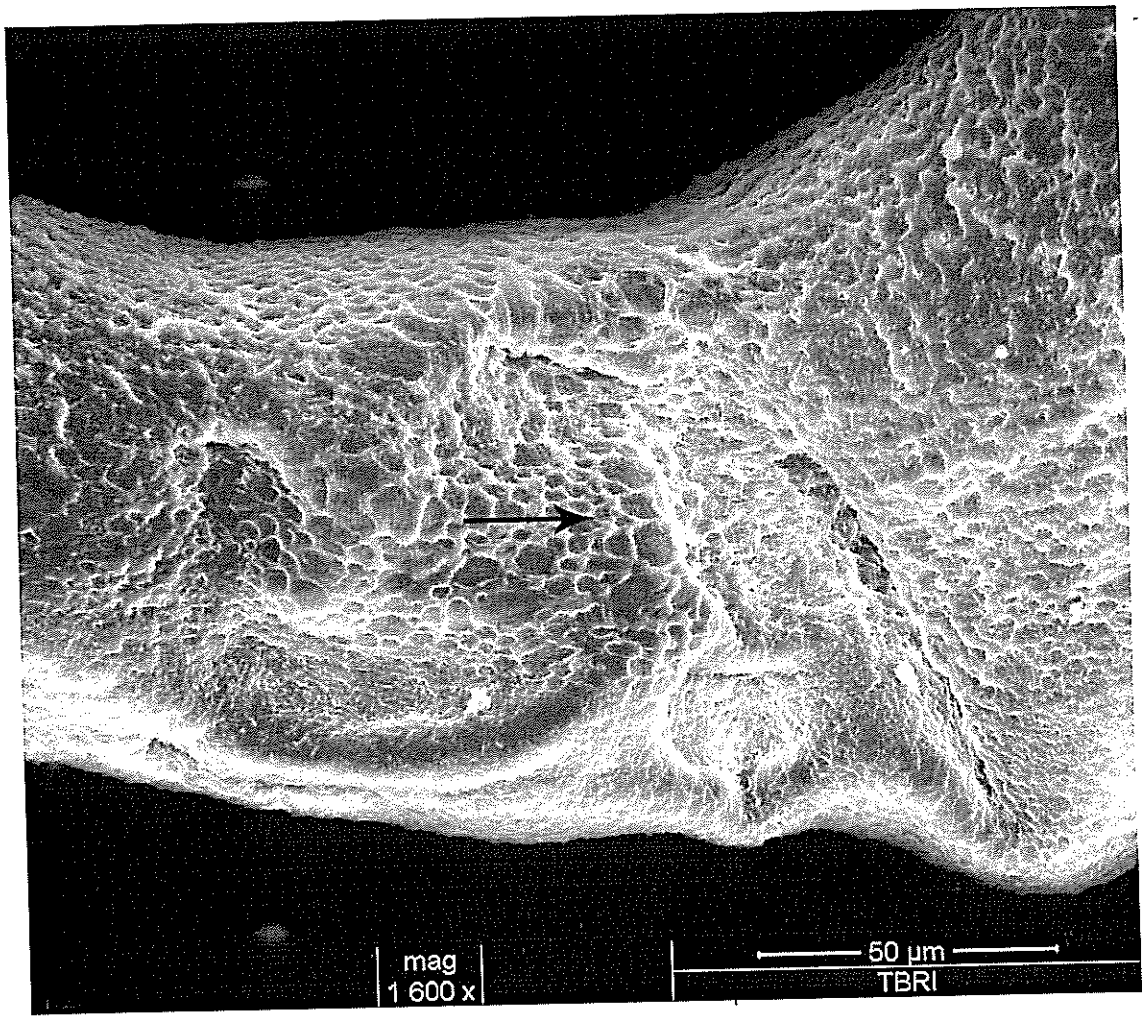


Figure 29: Scanning electron micrograph (SEM) of *S. mansoni* male after 3 days with mefloquine treatment showing shrunken oral sucker with deep furrows (X2031).

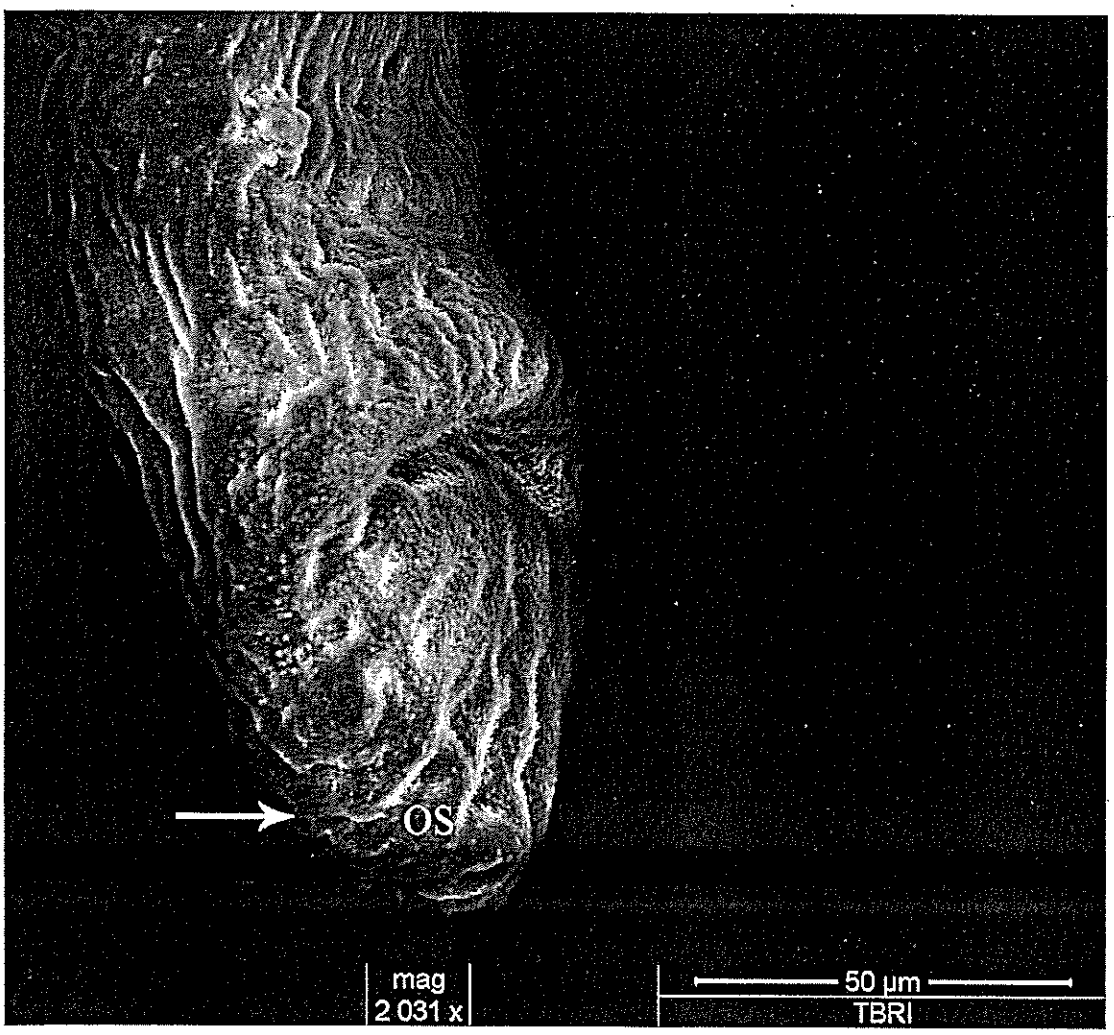


Figure 30: Scanning electron micrograph (SEM) of *S. mansoni* male after 3 days with mefloquine treatment showing disruption and peeling of the tegument with loss of spines and blebbing.(X600)

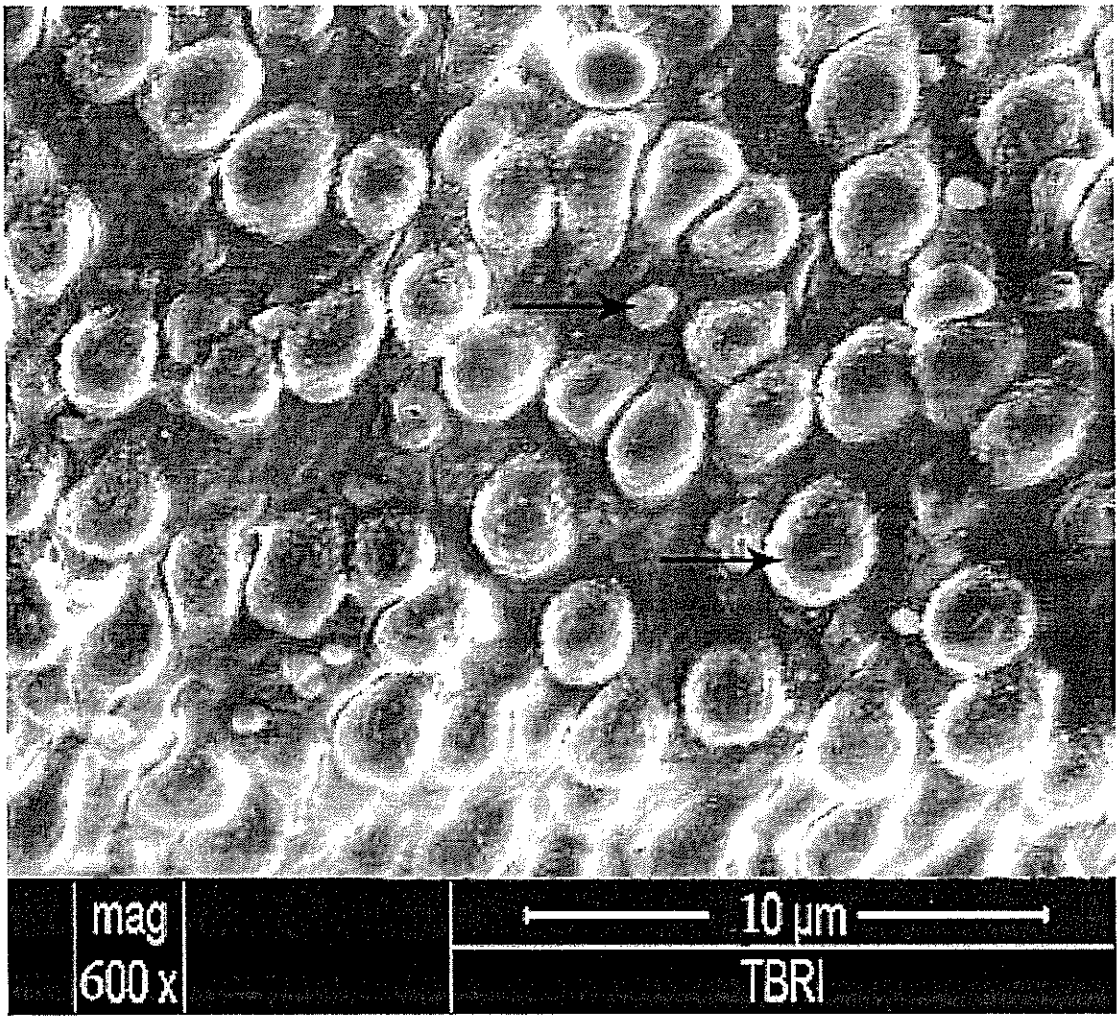


Figure 31 Scanning electron micrograph (SEM) of *S. mansoni* female after 3 days with mefloquine treatment shrunken tegument with formation of deep furrows(X500).

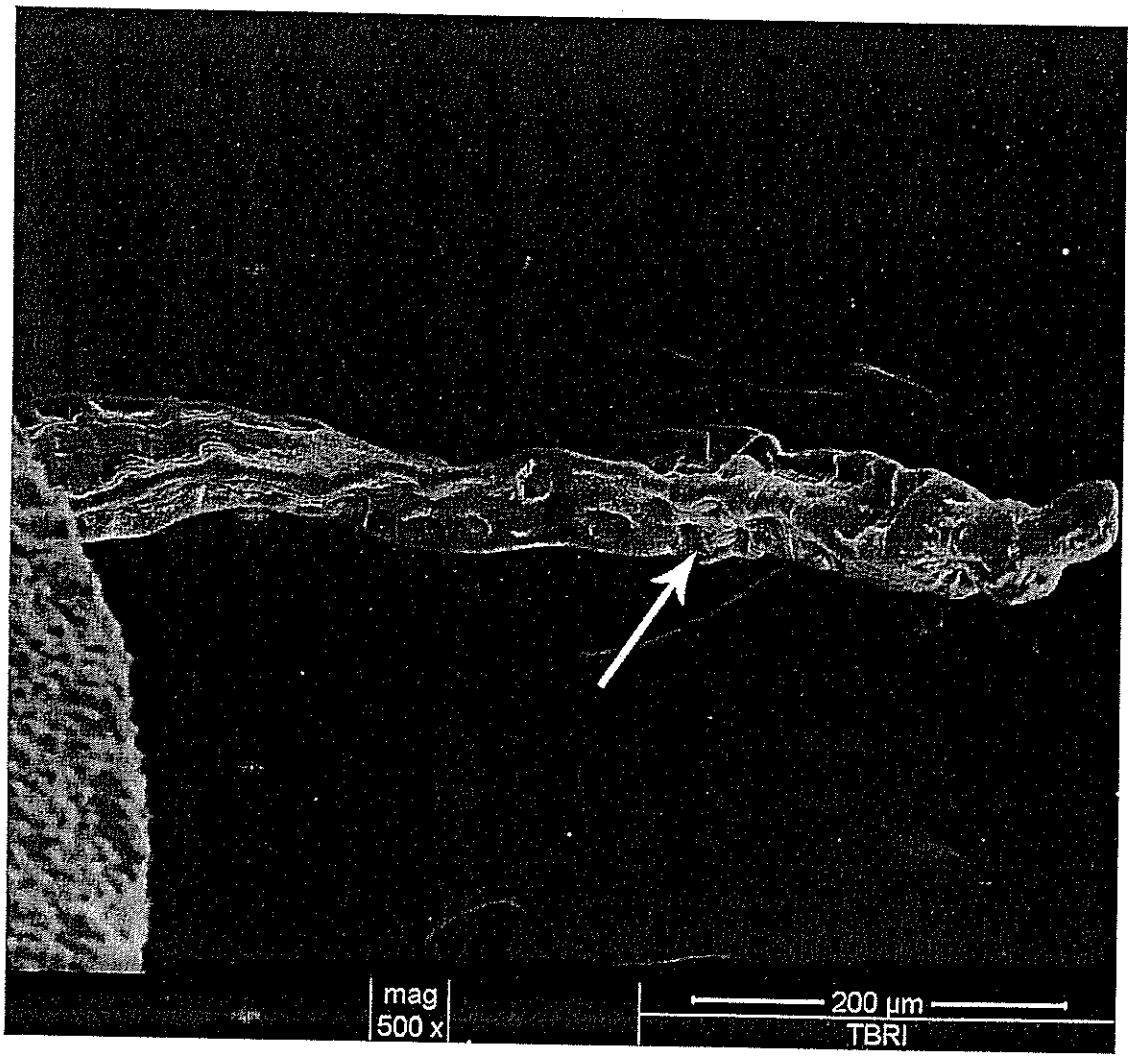


Figure 32 Scanning electron micrograph (SEM) of *S. mansoni* female after 3 days with mefloquine treatment shrunken tegument with formation of deep furrows(X112).

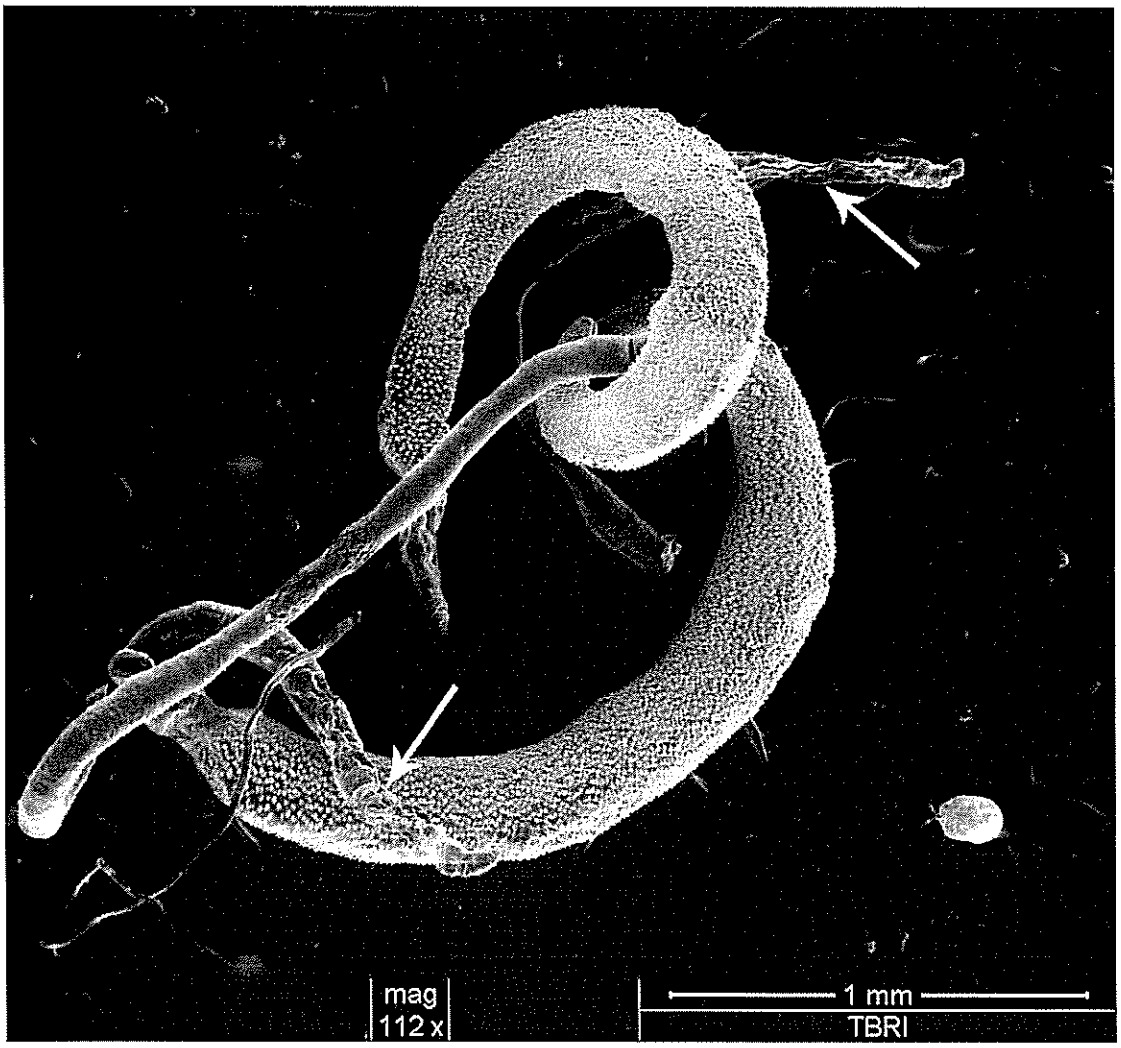


Figure 33 :Scanning electron micrograph (SEM) of *S. mansoni* male 7 days after mefloquine treatment flat tegument with flat ventral sucker (X1000).