of compounds which affect the CNS. In this regard, it is noteworthy that the only effect of tryptophan administration in the pigmented mouse strain was a reduction in pyrrolase activity following repeated treatments. Although the dearth of similar studies on other pigmented mammals makes generalizations hazardous, it may well be that reduction in pyrrolase activity is more common than is induction. Investigations on this possibility may elucidate additional mechanisms of enzyme regulation, as well as have therapeutic ramifications.

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Catalase in free-living and parasitic platyhelminths[1]

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Summary. Catalase was found in all of the free-living species of platyhelminths studied, but could not be detected in any of the parasitic species (trematodes or cestodes).

Catalase (EC 1.11.1.6) is ubiquitously distributed in aerobic organisms and is generally present in fairly large amounts. Only in strict anaerobes is catalase normally absent[2]. Some parasitic protozoa such as *Entamoeba histolytica*, some species of *Trichomonas* and certain stages of *Leishmania mexicana, L. donovani* and *Trypanosoma brucei* lack catalase[3–5], whilst in some microorganisms catalase is an inducible enzyme. The principle function of catalase is to protect cells against the damaging effects of peroxides. There have been reports that catalase activity may be low or absent in a number of parasitic helminths[4,6,7]. It was, therefore, of interest to see if this lack of catalase was a peculiarity of the phyla concerned or whether it could in any way be related to the parasitic mode of life.

A comparison of the catalase activity in a number of free-living and parasitic platyhelminths is shown in the table.

The distribution of catalase in free-living and parasitic platyhelminths

Species	Activity* (units/mgprotein × 10^3)
Free living	
Polycelis nigra	98 ± 20
Procerodes littoralis	6 ± 0.8
Leptoplana tremellaris	20 ± 3
Thysanozoon sp.	120 ± 30
Parasitic	
Anoplocephala magna	< 1
Moniezia expansa	< 1
Hymenolepsis diminuta	< 1
Hymenolepis nana	< 1
Schistocephalus solidus (plerocercoid)	< 1
Ligula intestinalis (plerocercoid)	< 1
Bothriocephalus scorpii	< 1
Schistosoma magrebowiei	< 1
Fasciola hepatica	< 1

Values are mean ± SEM, n = 6.

Catalase was assayed as described previously[7], the activity (units/mg protein) was calculated from the formula $K = {}^1/_t (\ln E_o/E_t) \times$ dilution factor, where E_o is the initial extinction at 240 nm and E_t the extinction after 10 sec. Catalase was present in all of the free-living species, but could not be detected in any of the parasitic ones. Catalase has also been shown to be absent from the adult and larval stages of *Taenia pisiformis*[4]. The lack of catalase would, therefore, seem to be correlated with the parasitic mode of life. Several parasitic helminths including *Fasciola hepatica* and *Moniezia expansa* have been reported to produce hydrogen peroxide when particulate fractions are incubated with substrate under aerobic conditions[8,9]. The origin of this hydrogen peroxide is unknown, but it is probably formed by the branched cytochrome chains[10]. The production of hydrogen peroxide could be a direct reflection of the lack of catalase. However, there is no evidence that helminths produce significant amounts of hydrogen peroxide in vivo[7], and it is possible that peroxidases may functionally replace catalase in parasitic platyhelminths. The absence of catalase from parasitic platyhelminths would appear to be a potential site for chemotherapy.

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