Venoms of parasitoid wasps injected into the host may play vital roles in successful parasitism. It could manipulate the host physiology and suppress its immune response. Heat shock proteins (hsps) could be induced by a variety of physiological stresses and might play roles in modulating the host-parasitoid relationship. Quantitative real-time transcription PCR was used to determine the changes of heat shock protein90 gene in Polidia interpunctella and Ephestia kuehniella larvae post parasitization by Bracon hebtor wasp. The results indicated that hsp90 gene expression level showed different behavior in both hosts, at all-time intervals post parasitism. Expression of the gene in P. interpunctella larvae was significantly down regulated at 12h. A high significant down regulated was observed at 24 and 72h after parasitization. Meanwhile, a high significant up-regulation was recorded after 48 h compared with control. On the other hand, the levels of hsp90 in E. kuehniella were high significantly down regulated in all treated larvae compared with control. We can conclude that the suppression hsp90 gene could be a component of parasitized hosts' manipulation strategy that regulate the host physiology and suppress the immune response. Hsp90 might play an important role in host paralysis and inhibit its development.