

By using antisera raised against synthetic pigment-dispersing hormone (PDH),  $\alpha$  and  $\beta$  forms, the distribution of the two hormones in the eyestalks of Macrobrachium rosenbergii, Penaeus monodon and Metapenaeus affinis was studied by indirect immunoperoxidase method. Immunoreactive patterns obtained from both antisera,  $\alpha$ -PDH and  $\beta$ -PDH, were similar among the three species. Strong  $\alpha$  and  $\beta$ -PDH immunoreactivity was observed in neurons in the region between medulla interna (MI) and medulla terminalis (MT) and MT. But  $\alpha$ -PDH reactivity was only found in the medulla externa (ME). In case of M. rosenbergii  $\alpha$  and  $\beta$ -PDH immunoreactivity was also located in the lamina ganglionaris (LG).

The numbers of  $\alpha$  and  $\beta$ -PDH positive neurons found in each region were similar among all species. In M. rosenbergii, M. affinis and P. monodon, the numbers of  $\alpha$  and  $\beta$ -PDH positive neurons found in the region between MI and MT were in the similar range of 42-57, 44-63, 71-91 neurons consecutively as well as in the region of MT similar range of neurons were observed, 2-6 and 5-11 neurons. In case of P. monodon the number of  $\alpha$ -PDH immunoreactive neurons in the MT was greater than  $\beta$ -PDH immunoreactive neurons; 12-18 and 3-7 neurons. In the region around the ME, only  $\alpha$ -PDH immunoreactive neurons were found in all three species, 7-15 neurons in M. rosenbergii, 76-126 neurons in P. monodon and 19-54 neurons in M. affinis. In addition, 320  $\alpha$ -PDH positive neurons and 598  $\beta$ -PDH positive neurons were observed in the LG of M. rosenbergii.

Similar patterns of PDH immunoreactive nerve tracts were presented in all three species. The neurons surrounded the ME send their processes into the ME; the neurons in the region between MI and MT send their processes to the ME, MI, MT and sinus gland (SG); the neurons around the MT have their processes go into the MT as well as the neurons in the LG send their process to the LG; the MT also receives PDH fibers from optic nerves.

By application of rabbit anti- $\alpha$  and  $\beta$ -PDH antisera on alternated thin sections. It is confirmed that  $\alpha$  and  $\beta$ -PDH immunoreactivity was presented in the same neurons in the region between MI and MT, LG, and MT. There is no  $\beta$ -PDH immunoreactivity in all  $\alpha$ -PDH positive neurons in the region surrounded the ME among the three species and some  $\alpha$ -PDH positive neurons in the MT of P. monodon. In contrast, there is no  $\alpha$ -PDH immunoreactivity in some  $\beta$ -PDH positive neurons in the LG of M. rosenbergii.