

CHAPTER V

DISCUSSION AND CONCLUSIONS

5.1 Discussion

The study was undertaken in nine provinces bordering Mekong River from November 2012 to May 2013 in Vietnam with the support of local authorities and the Meat Inspector teams there. However, the slaughtered animal information and trace back system is so poor or unavailable. So, some required information was lacking. Moreover, the surveillance and monitoring system on parasites were quite poor or not focused properly. Therefore, there was no parasitic prevalence data publicized nationwide.

In the present study, *Alaria mesocercariae* could not be detected in slaughter pigs originating from a region rich in waterways. Also, in the sampling place, the traditional farming system of pigs in Mekong Delta is of low bio-security and the natural environment can be a niche for the parasite. Having consulted, local paravets, the farmers applied deworming by praziquantel products. It can hide the real situation if mesocercariae are present in the population.

During the study period, some visits were undertaken to the areas where the intermediate hosts of first stage of *Alaria* should be expected. In the rice fields, some chemicals (such as niclosamide, metaldehyde products) were used to protect the crops that can kill snails also. This may interrupt the life cycle of the parasite. Besides, the moving ducks were raised in the rice field. It can reduce the snail population.

Beside these ecological, environmental and animal production factors, the detection technique may have limitations, which could have contributed to the lack of mesocercariae findings. There is no standardized method for detecting *Alaria*

mesocercaria until now. The “true” sensitivity of the method of detection used in this study is not known, however, at present, this is the method with the highest sensitivity to detect *Alaria* mesocercariae (Riehn *et al.*, 2010). Difficulties in identification of presumptive mesocercariae should be considered, but unlike *Trichinella*, the selection of *Alaria*-like objects is quite limited. From Riehn *et al.* (2010), it can be concluded that such difficulties are unlikely unless mesocercariae would have been devitalized in the sample prior to analysis (e.g. by deep-freezing).

5.2 Conclusions

All of 621 samples were negative, so, based on the sample size used would, if *Alaria* spp. is present at all, the prevalence of *A. alata* in the population studied was less than 5%. Although the habitat characteristics and the low level of biosecurity should allow contact of pigs with infested intermediate hosts, certain pig and duck farming practices as well as the application of chemicals for rice cultivation may have prevented the establishment of the life cycle of *Alaria* spp. However, these results will not allow the conclusion that the Mekong Delta is free from *Alaria* sp. without surveillance and monitoring of the target populations for the adult parasites and the intermediate stages.

5.3 Challenges and further studies

The Veterinary system still has some problems in administration. It can lead to some weakness in implementing the laws or disadvantages in control animal diseases. For example, the official Veterinary, under Ministry of Agricultural and Rural Development, is stronger in controls the animal issues from farm to market only. Otherwise, the third sector is mainly under control of the Health Ministry. On the other hand, the information exchange between the two Ministries could be improved. Therefore, there are some gaps and overlapping in the system that can lead to difficulties in control of diseases in animals and in human, special in food borne issues.

In recent years, the Official Veterinary focused more on problems caused by viruses than on bacterial or parasitical disease. So, the priorities are management of viral problems such as HPAI, CFV, PRRS, FMD, since the diseases caused some serious issues in economic or public health. Meanwhile, the food borne diseases caused by bacteria and parasites are not focused if there are no serious outbreaks in human. Therefore, the investment to strengthen capacities for laboratories and abilities for technician teams working in the bacterial and parasitic sectors were not concerned properly. Thus, there were no official records about kinds of parasites in the animal population nationwide even though some studies and researches are available in universities or institutes.

To get a clear picture on the occurrence of *Alaria alata* in Mekong Delta, further studies should be conducted considering wild carnivores, snails and amphibian populations as well as humans. Moreover, it is necessary to provide finance, means and strengthen the cooperation between veterinary and public health authorities. Hereby, the finding and understanding to *Alaria* spp., particularly *A. alata* could be improved and public awareness to the potential risk could be increased.