Review of the thesis entitled **Applied ecology on stored product pests** submitted by **Mgr. Gamilla Aspaly** to the Faculty of Sciences, Department of Ecology, Charles University in Prague

Thesis of Mgr. Gamilla Aspaly concerns the ecology of some species of stored food mites, mainly of the influence of temperature and an addition of bean flour to the diet on their population growth. Stored food mites in general are under certain conditions economically important pests on a broad range of stored food commodities and as a component of the household dust they may be hygienically unwanted synanthrops in human dwellings causing serious allergies in sensitive people. The study of all possible alternative approaches to their control is highly desirable. From this prospective the topics of the submitted thesis is timely and up to date.

The thesis is divided into two parts. The first one contains an introductory general survey of the stored product pests and their control, and singles out the problems and defines the aims of the thesis. The second part composed of three papers published in impacted journals contains the results, conclusions and references used.

The thesis is written in understandable English, the experiments are properly designed and the results well documented and interpreted. Mgr. Gamila Aspaly proved to be able of independent research and to solve complex scientific tasks.

As a referee I have the following comments and suggestions:

1. The biological control of stored food mites using the predator *Cheyletus eruditus* should be also mentioned in the survey of biological method used in the stores (pages 24, 25).
2. In the results of the paper "Temperature dependent population growths of three species of stored product mites" it is mentioned that the mites do not reproduce at temperatures below 10 °C and for this reason the store keepers do not have to worry about the mite infestation of the grain. However, these are results of strictly controlled laboratory experiments and their results are not always implicitly valid in the stores. The microclimate conditions of the huge mass of grain in large commercial storing facilities can positively influence the development of mite populations. In such a case the conclusions are only valid, if the grain is not stored for extended periods, because in low temperatures (below 10 °C) the mites might multiply but very slowly and their developmental cycles may last many months, actually longer than the period for which the grain is stored.
3. Can the candidate explain how the conditions in grain stores including temperatures in Libya differ from those prevailing in the Czech Republic. Will she be able to implement some of the results of the thesis in her native country?
4. The use of the botanical pesticide *bean flour* seems promising. The first experiments where 5 % concentration caused limitation of development of mites indicate that the treatment of one tone of grain would cost some €40, which seems to be economically acceptable. However, the second experiment – if I understand it well – did not yield good results in this respect. The mite population grew rapidly even on the grain mixed with the bean flour, though on the grain with bean flour less than in the control. What explanation do you have for these different outcomes?
5. Furthermore, I have some minor comments and corrections:

Page 13: If we accept classification by Hughes (1976) the use of order Astigmata (not Acarinea) which are associated with stored products is more correct.

Table 1, page 16: The correct name is Mesostigmata.

Page 20: The correct name is *Tribolium castaneum*

Page 28: The correct name is *Aleuroglyphus ovatus*

Page 55: Citation Hughes 1976 is not complete in the references.

Pages 49, 50, 53: Citations in Arabic language should be also given in English.

Page 66: List of parasites and predators should contain also the predators of mites. Otherwise, the title should be List of insect parasites and predators.

In conclusion I can appreciate ability of the candidate independently to design, test and evaluate scientific hypothesis and properly present her conclusions to the scientific community. It allows me to declare that the submitted work demonstrates that **Mgr. Gamilla Aspaly** is qualified to perform independent scientific research, thereby fulfilling one of the legal requirements for obtaining the academic degree of Ph.D. Therefore **I recommend that the Scientific Board accepts her thesis as a basis for awarding its author the title Philosophy Doctor.**

August 26, 2008.

RNDr. Eva Žďárková, CSc