

ABSTRACT

This thesis is concerned with the topic of teaching histology at secondary schools. Histology is focused on the study of microscopic structure of tissue. By this it comprises the basic foundation stone for the studies of organs and organ systems not merely in humans, but also in other animals.

The method of preparing the permanent histological slides, which has also been tested in practice, is thoroughly described in this thesis. The main goal of the practical part was to prepare a representative collection of the permanent histological sections through the organs of the house mouse (*Mus musculus*), to acquire its photo documentation as a base for an interactive histological atlas. House mouse (*Mus musculus*) was chosen as the model animal, because of its frequent utilization in various laboratory experiments and because this model mammal has the structure of tissues similar to human.

The atlas consists of the photo documentation of histological sections through the following organs: lungs, skin, heart, thymus gland, spleen, epididymis, testicle, penis, spermatic sacs, striated muscle, heart muscle, smooth muscle, liver, tongue, pancreas, small intestine, large intestine, gall bladder, kidney, urinary bladder, urethra, cerebellum and hippocampus. The sections are stained with application of hematoxyline – eosine and Masson's trichrome. Another complement of the histological atlas are the theoretical exposition and tests focusing on different organ systems.

Another part of the thesis is a survey aimed at the teaching histology at secondary schools. Within the scope of the survey, 1069 secondary schools biology teachers in the Czech Republic were approached. The form was sent via e-mail in an online form, in order to increase the number of returned questionnaires. To the given date 260 respondents filled in the form, which is approximately 24,3% of the total number of respondents. The aim of the questionnaire was to, besides other things, ascertain the contentment of the teachers with the processing of histology in the textbooks, to ascertain the utilization of secondary sources, the ability of teachers to create permanent histological sections by themselves and to discover their interest in extending this knowledge under the supervision of external lecturer.

The interactive histological atlas was created with the regard of its later use by the pedagogues in their lectures, but also with the consideration that it could represent a source

for self-taught students. On that account the survey was carried out between the teachers with the main goal to optimize the histological guide to their requirements. The interest in this teaching requisite manifested 90% of the respondents.

KEY WORDS

Mouse (*Mus musculus*), histological sections, mammalian tissue, histological atlas, survey, education, secondary school, interactive CD