

Faculty of Science
University of South Bohemia in České Budějovice

RNDr. Thesis

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(Arbo)viruses in high European Arctic

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Under the supervision of
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(Arbo)viruses in high European Arctic

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Annotation:

Since an ongoing climate change covers strongly the polar areas. Higher temperatures and related climate parameters bring the emergence of new parasites and their pathogens to higher latitudes. This may influence zoonotic diseases including arthropod-transmitted diseases. The tick species *Ixodes uriae*, parasitizing seabirds in the Arctic, may transmit many pathogens including various arboviruses, *Borrelia* spirochetes and *Babesia* apicomplexans. In the study we diagnosed 89 individuals of seabird tick *Ixodes uriae* and searched for arthropod-borne viruses from the genera Flavivirus, Alphavirus, Orthobunyavirus, Phlebovirus and Orbivirus using genus-specific primers. Moreover we searched for presence of *Borrelia* spp. and *Babesia* spp. DNA in the ticks. All samples were negative after PCR amplification for all tested pathogens. The result signalizes that tested pathogens might not be present in such high latitudes of European Arctic. Though, the possibility of introduction of these pathogens may be observable in near future due to quick changing of the Arctic ecosystem with the rising of migration of vertebrate hosts including humans to the polar areas. It is though important to continue to study potential presence of pathogens in polar areas. We are working on increase of the number of tick samples to confirm the presence or absence of the tick-borne pathogens in the European Arctic.

Declaration [in Czech]:

Prohlašuji, že svoji rigorózní práci jsem vypracovala samostatně pouze s použitím pramenů a literatury uvedených v seznamu citované literatury. Prohlašuji, že v souladu s § 47b zákona č. 111/1998 Sb. v platném znění souhlasím se zveřejněním své rigorózní práce, a to v nezkrácené podobě elektronickou cestou ve veřejně přístupné části databáze STAG provozované Jihočeskou univerzitou v Českých Budějovicích na jejích internetových stránkách, a to se zachováním mého autorského práva k odevzdanému textu této kvalifikační práce. Souhlasím s tím, aby toutéž elektronickou cestou byly v souladu s uvedeným ustanovením zákona č. 111/1998 Sb. zveřejněny posudky školitele a oponentů práce i záznam o průběhu a výsledku obhajoby kvalifikační práce. Rovněž souhlasím s porovnáním textu mé kvalifikační práce s databází kvalifikačních prací Theses.cz provozovanou Národním registrem vysokoškolských kvalifikačních prací a systémem na odhalování plagiátů.

V Českých Budějovicích dne 6.9.2016

Jana Elsterová

Expression of personal work on the publication:

Thanks to the project of the Centre of Polar Ecology from the Faculty of Science at the University of South Bohemia in České Budějovice, I could join the expedition to Svalbard archipelago. There I started a collaboration with the entomologists and ornithologists from the University Centre in Svalbard and from the Norwegian Polar Institute from whom I obtained the samples of ticks *Ixodes uriae*. Thereafter, I did the experimental work together with my colleague Bc. Jana Müllerová in the laboratory of arbovirology at the Biology Centre, Academy of Sciences, Czech Republic. The manuscript was written by the corresponding author, RNDr. Jiří Černý, PhD. in close communication with me and the colleagues from Svalbard.

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