

Detection of *Setaria tundra* microfilariae in mosquito populations from irrigated fields in Wrocław (Poland)

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In general, filarioses are vector-borne infections transmitted by haematophagous arthropods such as mosquitoes (Culicidae), or arachnids such as mites (Acari). It can be assumed from studies in other European countries that several *Onchocerca* spp. are transmitted by blackflies and biting midges, the *Dirofilaria* species by various mosquitoes and *Eufilaria* spp. by biting midges. *Aedes* spp. mosquitoes likely serve as the most important and competent vectors for *S. tundra* in Finland (*Ae. communis*, *Ae. punctor*, *Ae. hexodontus* and *Ae. excrucians*) and in Germany (*Ae. vexans* and *Oc. sticticus*). The veterinary importance of *S. tundra* is not well investigated. Outbreaks of peritonitis with significant economic losses in Finnish semi-domestic reindeer occurred in 2003-2005. Similar outbreaks may occur in any other wild or semi-domesticated cervid population outside Finland; *S. tundra* infections were confirmed in deer and elk in Poland. Mosquitoes infected with *S. tundra* were detected in Wrocław with an assay designed for *D. repens* infections. A novel assay was designed for *S. tundra* detection and was applied to the mosquito samples from Wrocław.

All trapping locations were situated in irrigated fields located in the northeastern part of Wrocław. This area was constructed in 1890 in the Odra River Valley to provide wastewater treatment before disposal into the river system. Floodwater mosquitoes, mainly *Ochlerotatus caspius* (Pallas), *Ae. vexans* (Meigen), emerge from these fields in huge numbers every summer following intermittent flooding, with wastewater entering the infiltration fields, while sewage canals support the development of *Culex* spp. larvae, which includes *Cx. pipiens* and *Cx. torretium* as associated species.

A total of 1950 mosquito females were collected in August and September 2012 with CO₂-baited EVS (encephalitis vector survey) traps. The insects were divided and merged into pools for DNA isolation. The heads were analyzed separately from the rest of the body. Specific primers were designed for the detection of *S. tundra* cytochrome oxidase subunit one gene fragments. Positive results were obtained for several pools of mosquitoes. The PCR products were sequenced and the NCBI BLAST analysis revealed that the obtained sequence belonged to *S. tundra*. Our results show that *S. tundra* was more widespread in mosquito populations than had been previously established with assays designed for other filaria.