

INTRODUCTION

- Black flies (Diptera: Simuliidae) are insects of medical and veterinary importance.
- In Thailand, a total of 139 black fly species, all belonging to the genus *Simulium* Latreille s.l., have been recorded.
- Three species, namely *S. asakoeae*, *S. nodosum* and *S. nigrogilvum*, were incriminated as natural vectors of three types of unidentified filarial worms in Chiang Mai province, northern Thailand.
- Recent studies also confirmed that *S. nigrogilvum* was the natural vector of *O. sp. type I* based on morphotaxonomic and molecular analyses.
- Information on the vectorial roles in zoonotic filarial transmission in other areas of Thailand are lacking.



AIM

- To clarify the vectorial roles of black fly species in zoonotic filarial transmission in central Thailand.

METHODS

- Black fly collection → Species identification of female black flies
- Dissection of female black flies
 - Morphological and molecular identification of unknown larvae

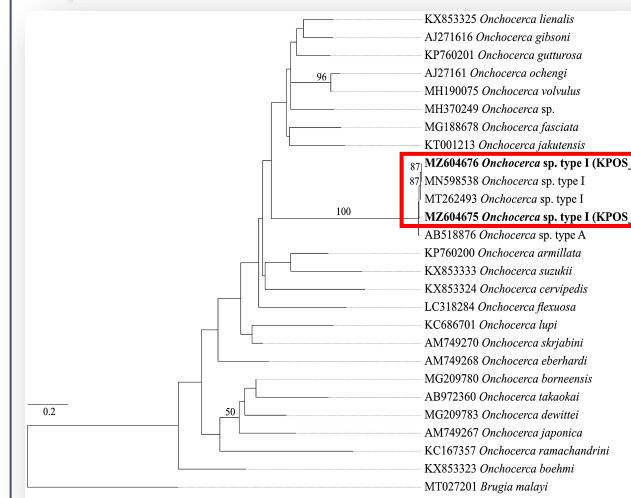
RESULTS

<i>Simulium</i> species	No. flies collected	No. flies infected (%)
<i>S. nigrogilvum</i>	708	2 (0.28)
<i>S. doipuiense</i> complex	179	-
<i>S. chamlongi</i>	11	-
<i>S. umphangense</i>	10	-
<i>S. chumpornense</i>	1	-
<i>S. multistriatum</i> species-group	1	-
<i>S. maewongense</i>	1	-
Total	911	2 (0.28)

Table 1. Black fly species collected from Kamphaeng Phet province, central Thailand during cool and rainy seasons and their natural filarial infections



Infective stage larva (L₃) of *Onchocerca* sp. type I isolated from thorax of female *S. nigrogilvum*.



ML tree of *Onchocerca* spp. based on the *cox1* gene sequences.

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OUTCOMES OF THE STUDY:

- These results reveal that female *S. nigrogilvum* could be the natural vector of *Onchocerca* sp. type I in the central region of Thailand based on morphological and molecular analyses.
- Detection of the infective larvae of *Onchocerca* sp. type I in *S. nigrogilvum* confirms that occurrence of zoonotic onchocerciasis is highly possible in Thailand.

FUTURE WORK:

Additional in-depth investigation of the morphology, life cycle and host-parasite relationship of filarial larvae that infected this black fly host is still needed.