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Host-feeding pattern of biting midges *Culicoides* and mosquitoes in Canary Islands, Spain: potential implications for disease transmission

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Flying blood-sucking insects play a main role under a veterinary perspective as blood feeders and vectors of a diversity of pathogens. The direct costs, draining resources from their hosts, or indirect costs, imposed by those pathogens transmitted by them, adversely affect the survival probability and health status of livestock and wild species. Furthermore, climate change and human activities have largely contributed to the introduction and spread of some of the diseases transmitted by flying blood-sucking insects during the last decades. Therefore, further studies are necessary in order to identify the potential insect vectors of diseases present in a particular area and identify their host feeding pattern. Here, we captured two insect groups, biting midges *Culicoides* and mosquitoes, in one farm in Gran Canaria and one farm in Tenerife. The bloodmeal origin of engorged females was determined using a recently developed molecular approach based on the Barcoding of Life program that aims to provide a reference library of COI sequences of all organisms on the Earth. The morphological identification of biting midges and mosquitoes revealed the presence of one morphospecies of biting midges belonging to *Culicoides obsoletus* group and five different species of mosquitoes including *Culex theileri*, *Culex pipiens*, *Culiseta longiareolata*, *Anopheles atroparvus* and *Anopheles cinereus*. In order to identify at the species level the biting midges captured, we sequenced the barcoding region from 20 individuals. Two haplotypes differing in a single base between them were identified, both belonging to *C. obsoletus* species. Moreover, we successfully identified the bloodmeal origin from 89 biting midges *C. obsoletus*, 121 *Cx. theileri* and four *Cx. pipiens* using amplification and sequencing of a fragment of the vertebrate COI gene. The analyses revealed that *C. obsoletus* females fed on goats and sheep, *Cx. theileri* fed blood on goats, sheep, dogs, cattle, cats, humans and chickens and *Cx. pipiens* fed on goats and chickens. Our results support that both goats and sheep in Canary Islands suffer the attack of different flying blood-sucking insects including biting midges *Culicoides* and mosquitoes. Also, because the biting midge *C. obsoletus* is considered a potential vector of bluetongue viruses, our results confirm the potential bluetongue circulation in case of virus introduction into the islands.