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BOOK OF ABSTRACTS



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Ticks and tick-borne pathogens: emerging health threats on the Italian side of the Western Alps

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The geographical expansion of ticks and tick-borne diseases (TBD) in Europe is a fact, favored by climate and ecosystem changes. In Northwestern Italy, ticks are an emerging concern, in particular *Ixodes ricinus* – the main vector of TBD in Europe. Tick-bites and human cases of Lyme borreliosis are on the rise in the Alpine region, even though they are probably under-diagnosed and underreported. Since 2016, we are carrying out monitoring activities on a local scale with an integrated approach, with surveillance: i) on ticks from the environment, domestic animals and wildlife; ii) on human tick bites and disease cases, in close collaboration with physicians. Different stakeholders are being involved in our activities: forestry workers, hunters, farmers, hikers. Our results demonstrate the presence of *I. ricinus* over 1800m a.s.l., in mountainous areas where this tick was absent in the past century. In addition, molecular analyses disclosed infections by bacteria belonging to the *Borrelia burgdorferi* sensu lato complex (*B. afzelii*, *B. garinii*, *B. valaisiana* and *B. burgdorferi* sensu stricto; 15.5% of tested nymphs), Spotted Fever Group rickettsiae (*Rickettsia helvetica* and *R. monacensis*; 20.7%), followed by *Anaplasma phagocytophilum* (1.9%), *Candidatus Neorhlichia mikurensis* (0.5%), and the relapsing fever spirochete *Borrelia miyamotoi* (0.5%). *Rickettsia slovaca* – causative agent of the 'tick-borne lymphadenopathy', was also detected in *Dermacentor marginatus*, the other tick species collected by dragging and on animals. Given the low awareness among the population and the complexity of TBD epidemiology, we believe that the integrated approach adopted may help in mitigating TBD impact on public health and provide scientific evidence for surveillance and prevention, and to inform decision makers.