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DETECTION, HOST PREFERENCE AND ROLE ON TREE STABILITY OF WOOD DECAY FUNGI IN URBAN ENVIRONMENT.

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Wood decay fungi colonizing stem and root systems can predispose trees to the risk of windthrows or limb failures, thus resulting in significant damages especially in urban environment. Hence, an early detection and identification of hazardous wood decay agents may be pivotal during tree hazard assessment of urban trees. In this paper we report the results of a long lasting research performed in the city of Turin and in other urban contexts, based on the application of conventional diagnostic methods (visual inspection of trees) and molecular biology methods (e.g. multiplex PCRs) for the detection of the most harmful or widespread wood decay agents of both conifers and broadleaves. On average, visual inspection of trees underestimates > 90% of infected trees compared with molecular methods. Lower rates of underestimation were observed for *Ganoderma* spp. and *Perenniporia fraxinea*; higher rates for *Armillaria* spp. and *Phaeolus schweinitzii*. Results of molecular biology methods show that the most frequent fungus in broadleaves was *Armillaria* spp., followed by *Ganoderma resinaceum* and *P. fraxinea* (14%, 5% and 4% of trees, respectively), while in conifers the frequency of *Armillaria* spp. was higher than that of *Fuscoporia torulosa* and *P. scheweinitzii* (13%, 7% and 6% of trees, respectively). Furthermore, analyses show that the frequency of different fungal species greatly varied depending on the host species, suggesting relevant degrees of host preference. Finally, results suggest that wood decay fungi may play a more prominent role as factors of tree instability in the case of broadleaves compared to conifers.