# PLANT PROTECTION PROBLEMS OF ORNAMENTAL TREES IN PUBLIC SPACES AND PARKS

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The sycamore, poplar, birch, willow and elm – among others – are beloved ornamental trees on streets, in parks and public areas in Hungary.Some of these species tolerate well urban environment, in hot summers they give us shadow, provide proper habitat for birds, squirrelsand lots of insectsliving in cities and also give us clean air.Unfortunately thesetrees in streets and parks are exposed to harmful environmental factors: salting of the roads at winter (increasing soil salinity), or on construction sites the workers don't used to take care of the protection of these trees so they could cause damages on their trunk. These trees tolerate badly the deterioration of the conditionssuch as changing temperature, so our warming climate could make their surviving harder. Many people are suffering because of the impacts of unsettled climate which has effect on plants too. There are lots of woody deciduous plants which can't adapt to these environmental factors. Weakening condition and various injuries could facilitate the colonization of pests and pathogens and developing the risk of diseases.

Water and moisture have an important role in the spreading, reproduction and infection of plant pathogen bacteria. Therefore, the changing weather in recent times is prosperous for them, especially long lasting, warm and humid terms. In the last few years several reports were published about bacterial species (*Brenneria* spp.) causing bark cancers on deciduous ornamental trees. Infected trees are characterised by symptoms of woody parts: vertical cracks on trunk and branches, necrosis, cankers from which black or reddish-brownish fluid is oozing. In Hungary two species were described of the genera of *Brenneria*: *Brenneria salicis*, the causative agent of watermark disease of willow and *Brenneria nigrifluens* which causes shallow bark canker of Persian walnut. Since 2012 similar symptoms were observed on trunks and branches of different woody ornamental trees. These bacteria cause serious problems in nurseries, public areas and parks. Because of the infection their values could decrease, exudate which appears on trunk could smell in some cases, and precious 40-50-year-old trees could decay. Our purposes were to survey, isolate and identify the causative agents of bark cancers and oozing liquids. From several locations of Hungary samples were collected, analysed by classical and

molecular (bacteriological) methods and it is verified that *Brenneria* species are responsible for the diseases. Their presence on ornamental treesin Hungary is increasing and become a seriousproblem of plant protection in urban environment. Pathogens attack primarily older trees and their treatment could not be solved easily. There aren't effective appropriate application methods and pesticides against bacteria, in urban environment the treatments mustbe performed in the evenings or at night – after informing people who lives there. Besides there are hygiene rules and people should sterilize the pruning equipment, but this slows down works, therefore these rules aren't kept all the time. We consider it important to show some data about these plant pathogen bacteria which cause increasing and severe symptoms and there are unsolved problems with the plant protection methods against them. Besides it is our common interest to protect our valuable and remarkable plant species in urban areas from devastation.