



XV OPTIMA Meeting

June 6-11, 2016
MONTPELLIER

Abstracts

Oral presentations
Poster presentations

Montpellier (France), 6-11 June 2016



OPTIMA (Organization for the Phyto-Taxonomic Investigation of the Mediterranean Area)

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Green roofs and living walls – benefits and challenges

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The urban vegetation can restore the environmental quality of cities by reducing the Urban Heat Island effect, improving air quality and energy performance of buildings, managing storm-water, and fostering biodiversity. These benefits can play a key role, since four out of five European citizens live in urban areas, and their quality of life is directly influenced by the state of the urban environment.

Greening the building envelope can be a way to introduce more vegetation in dense cities. Vegetated roofs may use different plant species, for both their influence on architectural aesthetics and for achieving microclimatic improvements. Traditionally green roofs are widespread in northern Europe. The many products available on the market propose several integrated solutions for proper drainage, waterproofing, and roof protection depending on the vegetation type, such as grass and larger or smaller shrubs. For every type of green roof substrate thickness, maintenance needed, system weight, obtainable microclimatic benefits, influence on architectural aesthetic, costs and use are different.

Vertical greening systems are made by simple climbing plants, supporting structures for their growth or planter boxes placed at several heights with a shading function; others provide the possibility to cultivate species not naturally suitable for growing on vertical surfaces, thanks to the disposition of (pre-)vegetated panels, defined as “living wall systems”.

The vertical greening systems available on the market have very different formal and functional characteristics, performances and costs. Some systems can require high maintenance needs. Some plants may need to be replaced every year, panels can have a life expectancy of 10 years, automated watering systems need maintenance and plants need up to 3 litre/day per square meter; on the other hand a simple climbing plant has very low maintenance needs and may not require a watering system. These systems entail very different environmental burdens, due to maintenance, initial, and disposal costs.

In the Mediterranean area, vertical greening systems and green roofs can improve summer outdoor and indoor thermal comfort, mitigating the urban heat island phenomenon and reducing the energy demand for air conditioning. Green walls and green roofs are habitats for wildlife, with the potential to support life in a situation that would otherwise be largely barren and sterile. In general, greening the building envelope is a complex issue and implies a critical evaluation of the benefits obtainable in relation with the built space and climatic characteristics, durability, maintenance, and economic aspects.