

**Co-composting of sediments and green waste as technology for producing innovative growing media for plant nursery
“LIFE AGRISED LIFE17 ENV/IT/000269”**

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Abstract

Dredging in harbors and waterways is necessary to maintain sufficient depth for navigational access. Traditionally, dredged sediment are managed as waste materials, hydraulically raised and placed in confined disposal facilities, and less than 1% is recycled at present. However, European policy and International Conventions encourage valorization of dredged sediments, and this will be a technological challenge in the near future. Among the remediation methods for polluted sediment amelioration, physico-chemical treatments are generally expensive and cause high environmental impact, whereas phytoremediation, a soft remediation technology based on the use of plants and associated microorganisms coupled with landfarming, and co-composting, can be feasible, effective and low cost techniques to recycle polluted sediments, also improving their structure and nutrients content.

The goal of the recently granted LIFE project ‘AGRISED’ (LIFE17 ENV/IT/000269) is to demonstrate the potential of dredged sediments co-composted with green waste to produce innovative growing media for plant nursery. Sediments will be obtained by the Navicelli S.P.A. (Pisa), the company managing the Navicelli industrial canal, will be dewatered until a moisture level of about 40-50% and mixed with green waste obtained by maintenance of public and private green areas to co-composting. Green waste represents the main C and nutrient source that stimulate the microbial activity and three sediment:green waste mixes (w:w) will 1:1, 3:1 and 1:3. The co-composting process will be monitored in terms of temperature, humidity, bulk density, pollutant contents and microbial communities and activity. The co-composting process is forecasted to be completed within 6-8 months, until full maturation and stabilization of the composted materials. At the end of the co-composting process, the compost will undergo all the analyses and tests required by the current Italian legislation, and will be transported to the sites for demonstration of being used in plant nursery with high added value plants, such as *Photinia x fraseri* e *Viburnum tinus*.

Keywords: co-composting, sediments, green waste, recycling, plant nursery