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Research, techniques, materials, modelisation and calculation

### **Organic waste materials for Bioengineering works**

Roberta Calvo      PhD student – University of Palermo.  
Regional Board Member AIPIN<sup>1</sup>-SICILIA, [roberta.calvo@unipa.it](mailto:roberta.calvo@unipa.it)

Gianluigi Pirrera      Civil engineer (Esperto di Ingegneria Naturalistica),  
Vice-president AIPIN<sup>1</sup>, [jl.mine@libero.it](mailto:jl.mine@libero.it)

Francesco D'Asaro      Full professor – University of Palermo, member AIPIN<sup>1</sup>  
[francesco.dasaro@unipa.it](mailto:francesco.dasaro@unipa.it)

(1) *Associazione Italiana per l'Ingegneria Naturalistica (AIPIN)*

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#### **Abstract**

Bioengineering uses plant and biodegradable materials of natural origin, stones, steel, additives and synthetic products in various combinations and as support for the growth of plants. The lack of available resources and progressive increasing of desertification in Sicily, led to the search for alternative materials. Objective of the work is testing organic waste materials for the realization of bioengineering works in the several areas of application: terrestrial, fluvial and coastline. To this aim, is proposed the use of innovative techniques that involve the construction of low-cost brushwood, environmentally friendly materials made: the pruning of vines and the oceanic *Posidonia oceanica* beached (*banquette*). The use of these two organic materials, which are a special solid waste, widely present in Sicily, is part of an efficient use of resources while respecting the environment. Assembled by hand or mechanically in the form of fascine or biocarpet, the residues of the vine pruning will constitute the modular element to achieve anti-erosion linear works while the residues of *Posidonia oceanica* (previously leached), constitute the growing media which, along sowing or planting of native species, make it "alive" the artefact.



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