

RESIDUAL EFFECTS OF 6-BENZYLAMINOPURINE ON FIELD PERFORMANCES AND EVALUATION OF *IN VITRO* ROOTING OF *ARUNDO DONAX* L.

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The recent growing interest in *Arundo donax* L. (Giant reed) as an energy crop is due to the great vegetative vigor and biomass production. This perennial rhizomatous species is able to grow in a wide range of pedo-climatic conditions and it has been employed by man for a great number of purposes. For these reasons *Arundo* spread worldwide despite its sexual sterility. In the past we collected in the experimental field (Azienda Agricola Angelo Menozzi, Landriano PV) more than 100 clones representing all the Italian territory: we noticed different growth habits and productivity among clones suggesting to evaluate the variability in other traits such as in vivo e in vitro propagation. Field establishment represents the most expensive phase of the whole cultivation cycle, because of the high cost of the propagules. Three agamic propagation methods are possible to pursue this first step: rhizome transplantation, hydroponic cultivation and in vitro propagation. A preliminary study evaluated the field performances of these techniques, highlighting that the plants produced by in vitro propagation, had a significant lower biomass production with more numerous but shorter culms. These effects suggest a residual effect of 6-Benzylaminopurine (BA), which has been reported to shorten the shoots, increase their number, and interfere with development of hypogeal apparatus. When *Arundo* is grown in vitro, multiplication and rooting are simultaneous, allowing us to skip a step on hormone-free media before hardening of plantlets, but any detrimental effect on biomass production should be avoided. Alternative cytokinin-similar hormones use has been suggested and a novel poplar-derived compound with no tradeoffs in rooting, meta-Topolin, has been individuated. We have started an *Arundo donax* L. callus culture using organs from in vitro plantlets to obtain undifferentiated tissue, and after root induction we obtained roots characterized by a wide range of different shapes To evaluate the quality of the roots obtained by in vitro culture we have set up trials to compare roots developed under an optimum level of BA for propagation and three different levels of meta-Topolin.