Bioenergy Expansion Worldwide and the Mediterranean Potential for Sustainable and Low Cost Biomass feedstock for Energy production

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Bioenergy is providing more than 10% of the global primary energy supply. The re-orientation of the world's economy from fossil sources to biomass renewable energy and products presents many advantages. However, biomass sources have to fulfill the sustainability criteria and to avoid the fuel vs food competition. So, bioenergy and other bio-products have to come from feedstock produced: on marginal land, on land covered by water, from the wastes and from the agricultural /forest residues.
The author presented data and opinion on the progress of the following technologies:
Co-firing of biomass feedstock with coal, pellet production, torrefaction, small pellet units, small combustion units, anaerobic fermentation, gasification, next generation biofuels, biorefineries,and on the farm biomass feedstock transformation to bioenergy.
The Mediterranean region has potentials for the production of sustainable and low cost biomass for energy. Suitable energy crops adapted to the Mediterranean climatic conditions were proposed, i.e. *Agave tequilana, Opuntia ficus-indica, Panicum virgatum, Sorghum bicolor, S. sudanense, Pennisetum purpureum and Arundo donax*. The world's economy is moving to substitute fossil fuels with the renewable sources. From all the renewable sources the only one producing hydrocarbons is biomass, able to substitute all fossil raw materials used for industrial Products and Energy. Many Mediterranean regions have the privilege to produce low cost and sustainable biomass not in competition with food/feed, but research and demonstration is needed to prove this privilege.