

Industrialization strategy of aqueous and solvent extracts from domestic bamboo stems

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Bamboo trees have high economic values because of rapid growth rate, rich biomass components and high health effects. The following bamboo trees are major cultivars: *Phyllostachys bambusoides* Sieb. Et Zucc., *P. nigra* var. *henonis* Stapf, *P. pubescens*. Among several parts of bamboo tree, bamboo stem contains cellulose, lignin, minerals, silica, and etc. In this study, industrialization strategy using bamboo stem components were suggested by chemical stoichiometry and economic analysis. To prepare cellulose and lignin, solvent extraction process would be applied whereas silica and mineral components were by water soaking and boiling. Several cosmetic and food products could be developed using the components mentioned above. The residue of the final process would be treated by several wood-decaying strains resulting in compost fertilizer. In summary, the realization of a zero-waste utilization of bamboo stems is possible according to this roadmap with huge impact in economic and environmental issue about bamboo tree application. Acknowledgement: This work was supported by the Human Resource Training Program for Regional Innovation and Creativity through the Ministry of Education and National Research Foundation of Korea (2015H1C1A1035883).