

Chapter 7

Final Considerations



Research and development of processes using biomass involve understanding the advantages and disadvantages of each pretreatment and the factors that act on the lignocellulosic matrix recalcitrance breakdown mechanism to improve cellulose, hemicellulose, and lignin separation and/or hydrolysis.

Utilization of the constituents of the various biomasses should be maximized, homogenizing the diversity of physicochemical and constitutional characteristics of biomasses located near production plants, with the purpose of generating products with unique pretreatment requirements. Combined pretreatments tend to provide better yields during enzymatic hydrolysis of lignocellulosic biomass. Nevertheless, rising operating costs may be involved simultaneously. Proper combination pretreatment should not only improve the digestibility of biomass at relatively low operating costs but also maximize the utilization of its components.

In this context, biomaterial engineering applied to waste biomasses uses should consider the lowest possible number of degradation reactions of its components and generation of pollutants, aiming at natural resources optimization, minimization secondary and tertiary residues with technical and economic feasibility, considering aspects of sustainability, and safety of the circular economy approach.