

RECOMMENDATIONS

Recommendations to biotechnology industry

The environmental impact of PBS production is quite important. As a comparison, the impact is greater than that of PET, despite the renewable origin of succinic acid. One reason is the scale of production; the second is the specific impact of the monomer recovery at the end of fermentation process.

- **Enlarge the uses of succinic acid** will help the development of high scale production. Despite succinic acid is a Top reference building block for chemistry, its applications apart from the plastic sector are poorly worked
- **Improve the succinic acid monomer recovery step** is an essential point both for environmental and economic considerations. Different routes were studied in the project ; one is to reconsider entirely the biotechnological route

Another aspect in the production of PBS is the route for the production of butanediol. Today, considering the higher interest in the development of succinic acid, the choice is generally to convert succinic acid into butanediol by hydrogenation; but more interesting routes should be developed considering a **direct biosynthesis of butanediol**.