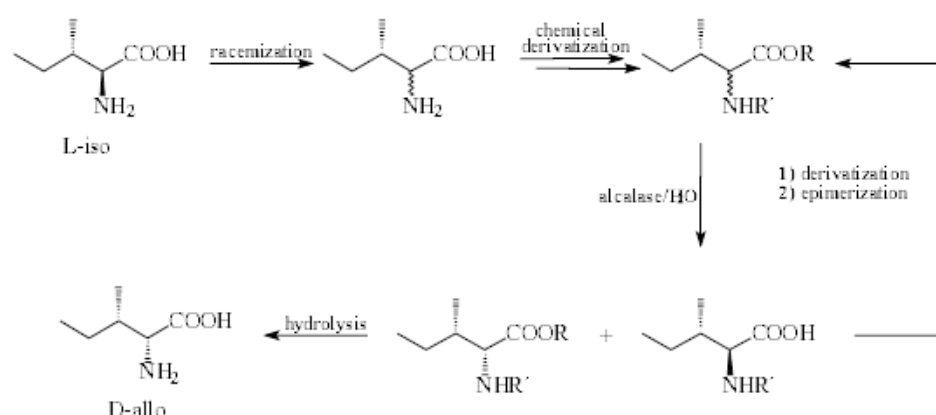


ter derivatives including protecting groups usually employed in peptide synthesis.

Hydrolysis in water gave excellent separation of the two diastereoisomers allowing the obtainment of D-alloisoleucine derivatives in the maximum allowable yield in high enantiomeric excess.

During the elaboration of the substrates opportunities to effect the separation of the diastereoisomers *via* crystallization were successfully explored.



P253 PHOSPHOLIPASE D CATALYSED SYNTHESIS OF PHOSPHATIDYLSERINE IN A HOLLOW-FIBER MEMBRANE REACTOR

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Keywords: phospholipase D, hollow fiber membrane, transphosphatidylation

Phospholipase D obtained from a culture of *Streptomyces* sp. PMF, was immobilised in a hollow fiber membrane by ultrafiltration. The reactor was used to contact an organic solution containing phosphatidylcholine (PC, 50 g.l⁻¹) and a water solution at different pH and the rate of formation of the hydrolysis product (phosphatidic acid, PA) was measured. Subsequently the water phase was replaced with a 3M water solution of L-serine and the rate of transphosphatidylation at different pH was evaluated. The reaction was complete in a 48 h period. The formation of the hydrolysis product was minimized working at pH 4.5 where hydrolysis rate is minimal. The operational stability of the system was excellent during a period of several months.

Although the space-time yield of phosphatidylserine formation is lower than in a biphasic CSTR system, the purity of the product and the enzyme consumption is advantageous.

P254 BIOSYNTHESIS OF SESQUITERPENE LACTONES IN CHICORY AND APPLICATION OF THE ENZYMES INVOLVED

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Keywords: sesquiterpenes, biosynthesis, hydroxylation, nootkatone

The edible sprouts of chicory (*Cichorium intybus* L.) are used as a vegetable and are well-known for their slightly bitter taste, which originates from sesquiterpene lactones (*e. g.*, lactucin). Especially the roots contain high concentrations of these bitter principles, which makes them unsuitable for use as cattle feed. However, we have demonstrated that the enzymes responsible for the biosynthesis of the sesquiterpene lactones are still present and active in the roots after the harvest of the sprouts. The first steps in the biosynthetic route have been elucidated by us¹⁻³.

One of the enzymes involved, the (+)-germacrene A hydroxylase, appears to possess a broad substrate specificity coupled to a high regioselectivity, making this enzyme an attractive catalyst for the hydroxylation of terpenes in flavour and fragrance industry. An especially interesting reaction is the one-step conversion of (+)-valencene into nootkatone⁴, a much sought flavour component of grapefruit.

