

Title (en)
BIOLOGICAL AND CHEMICAL CONVERSION PROCESSES IN LIQUID PHASE-SYSTEM.

Title (de)
BIOLOGISCHE UND CHEMISCHE UMWANDLUNGSVERFAHREN IN FLÜSSIGEM PHASENSYSTEM.

Title (fr)
PROCEDES DE CONVERSION BIOLOGIQUE ET CHIMIQUE DANS UN SYSTEME A PHASE LIQUIDE.

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Abstract (en)
[origin: WO8201563A1] Method for carrying out biological and chemical conversion processes which require the presence of one or more catalytically active substances, such as enzymes, microorganisms, cells, organelles, cell homogenates, and organic or inorganic catalysts. The method is carried out in a liquid system consisting of at least two aqueous phases (F1, F2) so selected that the catalytic substance (K) is enriched in one (F1) of the phases, while the starting substrate (S) of the process is distributed in both phases or, advantageously, is enriched in the same phases as the catalytic substance, and the process product (P) is distributed in both phases or, advantageously, is enriched in the other phase (F2). During the process, the system is agitated to finely disperse one phase in the other. The process product can be recovered from the other phase, either by ceasing to agitate the system and allowing the phases to separate, or by maintaining dispersment of one phase in only a part of the other phase and continuously tapping off the upper part of the other phase for removal of the process product therefrom and then returning the removed phase part to the agitated part of the liquid system. Advantageously, the other phase (E2) of the liquid system has a substantially larger volume than the mentioned one phase (F1). The method can be applied with gaseous, low-molecular, macromolecular and particulate starting substrates, which may be soluble or insoluble in the system. The method according to the invention affords particular advantages when carrying out enzymatic conversion reactions requiring the presence of a coenzyme. In this case, the coenzyme and an enzyme operable to regenerate the coenzyme are also introduced to the system, the two phases of which are selected so that the coenzyme and the further enzyme are also enriched in the same phase as the enzyme requisite to the conversion reaction.

Abstract (fr)
Mise en oeuvre de procedes de conversion biologique et chimique qui requierent la presence d'une ou plusieurs substances catalytiquement actives, telles que des enzymes, des micro-organismes, des cellules, des organites, des homogenats de cellules et des catalyseurs organiques et inorganiques. Le procede est execute dans un systeme liquide consistant en au moins deux phases aqueuses (F1, F2) selectionnees de maniere telle que la substance catalytique (K) soit enrichie dans une (F1) des phases, tandis que le substrat de depart (S) du procede est distribue dans les deux phases ou, avantageusement, est enrichi dans la meme phase que la substance catalytique, et le produit du procede (P) est distribue dans les deux phases ou, avantageusement, est enrichi dans l'autre phase (F2). Pendant le procede, le systeme est maintenu en agitation pour disperser finement une phase dans l'autre. Le produit du procede peut etre extrait de l'autre phase, soit en arretant l'agitation du systeme et en laissant les phases se separer, ou en maintenant la dispersion d'une phase dans une partie seulement de l'autre phase et en soutirant en continu la partie superieure de l'autre phase pour en extraire le produit du procede et renvoyer ensuite la partie de phase soutiree vers la partie maintenue en agitation du systeme liquide. Avantageusement, l'autre phase (F2) du systeme liquide presente un volume sensiblement plus important que la phase mentionnee (F1). Ce procede peut etre applique a des substrats de depart gazeux, particuliers, possedant des micro-molecules ou des macro-molecules, pouvant etre solubles ou insolubles dans le systeme. Ce procede presente des avantages particuliers lors de la conduite de reactions de conversion enzymatiques qui necessitent la presence d'un co-enzyme. Dans ce cas, le co-enzyme et un enzyme servant a regenerer le co-enzyme sont aussi introduits dans le systeme, dont les deux phases sont selectionnees de maniere telle que le co-enzyme et l'autre enzyme soient aussi enrichis dans la meme phase que celle

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