Amino acids production focusing on fermentation technologies – A review

Amino acids production focusing on fermentation technologies – A review

Amino acids are attractive and promising biochemicals with market capacity requirements constantly increasing. Their applicability ranges from animal feed additives, flavour enhancers and ingredients in cosmetic to specialty nutrients in pharmaceutical and medical fields.

This review gives an overview of the processes applied for amino acids production and points out the main advantages and disadvantages of each.

Due to the advances made in the genetic engineering techniques, the biotechnological processes, and in particular the fermentation with the aid of strains such as Corynebacterium glutamicum or Escherichia coli, play a significant role in the industrial production of amino acids. Despite the numerous advantages of the fermentative amino acids production, the process still needs significant improvements leading to increased productivity and reduction of the production costs.

Although the production processes of amino acids have been extensively investigated in previous studies, a comprehensive overview of the developments in bioprocess technology has not been reported yet. This review states the importance of the fermentation process for industrial amino acids production, underlining the strengths and the weaknesses of the process. Moreover, the potential of innovative approaches utilizing macro and microalgae or bacteria are presented.

General information
State: Published
Organisations: Department of Environmental Engineering, Residual Resource Engineering
Contributors: D'Este, M., Alvarado-Morales, M., Angelidaki, I.
Pages: 14-25
Publication date: 2018
Peer-reviewed: Yes

Publication information
Journal: Biotechnology Advances
Volume: 36
Issue number: 1
ISSN (Print): 0734-9750
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 12.05 SJR 3.006 SNIP 3.531
Web of Science (2017): Impact factor 11.452
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 11.05 SJR 2.747 SNIP 3.141
Web of Science (2016): Impact factor 10.597
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 10.56 SJR 2.915 SNIP 3.396
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 10.24 SJR 2.941 SNIP 3.738
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 10.71 SJR 2.951 SNIP 4.017
Web of Science (2013): Impact factor 8.905
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2