A study for producing drinking water with safe trihalomethane concentrations


Abstract:

This article investigates trihalomethanes (THMs) production and simulates water age in Assiut drinking water system using WaterCAD software. Prechlorinated water samples were collected from Nazlet Abdellah water treatment plant and post-disinfected with chlorine/chloramines with different chlorine-to-nitrogen ratios (Cl2/N). Experiments have examined varying residence times, ratios of Cl2/N, pH conditions, and storage containers type on THMs formation. The results showed that as the residence time increased, THMs concentrations increased. Water age in Assiut drinking water distribution network reaches more than 10 h. Using chloramines instead of free chlorine for post-disinfection resulted in lowering THMs concentrations to 58.9 % after 48 h of disinfection. Ratios of Cl2/N (2:1–6:1) were comparable and effective on lowering THMs concentrations, and the most effective ratio was 4:1. Also, as the pH increased, the THMs increased. The measured THMs concentrations in chloraminated water stored in glass and plastic bottles were approximately the same.

Keywords:

Drinking water system  Simulation  Chlorine  Chloramines  Disinfection by-products  Trihalomethanes

Published In:

Journal of Clean Technologies and Environmental Policy , Vol. 16 - No. 5 , 807-818
Effect of starvation period on microbial community producing hydrogen from paperboard mill wastewater using anaerobic baffled reactor

A. Farghaly, S. Le Roux, P. Peu, P. Dabert, A. Tawfik

Abstract:

NULL

Keywords:

NULL

Published In:

Environmental Technology, NULL, NULL
-Bioethanol Production from Paperboard Mill Sludge Using Acid Catalyzed Bio-derived Choline Acetate Ionic Liquid Pretreatment Followed by Fermentation Process

A. Farghaly, M. Elsamadony, S. Ookawaraa, and A. Tawfik

Abstract:

NULL

Keywords:

NULL

Published In:

Energy Conversion and Management, 145, 255-264
-Simultaneous Hydrogen and Methane Production through Multi Phase Anaerobic Digestion of Paperboard Mill Wastewater under Different Operating Conditions

A. Farghaly and A. Tawfik

Abstract:

NULL

Keywords:

NULL

Published In:

Applied Biochemistry and Biotechnology, 181, 142-156
Polyhydroxyalkanoates Production from Fermented Paperboard Mill Wastewater Using Acetate-Enriched Microbial Culture

A. Farghaly, A. Enitan, S. Kumari, F. Bux, and A. Tawfik

Abstract:

NULL

Keywords:

NULL

Published In:

Clean Technology and Environmental Policy, 19(4), 935-947
Magnetite/Graphene Oxide Nano-Composite for Enhancement of Hydrogen Production from Gelatinaceous Wastewater

A. Mostafa, A. El-Disouky, A. Fawzy, A. Farghaly, P. Peu, P. Dabert, and A. Tawfik

Abstract:

NULL

Keywords:

NULL

Published In:

Bioresource Technology, 216, 520-528
Inoculation of Paperboard Sludge versus Mixed Culture Bacteria for Hydrogen Production from Paperboard Mill Wastewater

A. Farghaly, A. Tawfik, and A. Danial

Abstract:

NULL

Keywords:

NULL

Published In:

Environmental Science and Pollution Research, 23, 3834–3846
Potentials of Using Non-Inoculated Self-Aerated Immobilized Biomass Reactor for Post-Treatment of Up-Flow Anaerobic Staged Reactor Treating High Strength Industrial Wastewater

A. Manal, A. Farghaly, S. Leroux, P. Peu, P. Dabert, and A. Tawfik

Abstract:

NULL

Keywords:

NULL

Published In:

Journal of Chemical Technology & Biotechnology, 92, 1065-1075
Surfactant-Supplemented Mixed Bacterial Cultures to Produce Hydrogen from Paperboard Mill Wastewater

A. Farghaly, A. Tawfik, and Mona Gamal El-Din Ibrahim

Abstract:

NULL

Keywords:

NULL

Published In:

Engineering in Life Sciences, NULL, 525-532
Continuous Biological Treatment of Paperboard Mill Wastewater along with Hydrogen Production

A. Farghaly, A. Tawfik, and Mona Gamal El-Din Ibrahim

Abstract:

NULL

Keywords:

NULL

Published In:

Energy Procedia, 74, 926-932
Effect of Using Paperboard Bacterial Culture on Fermentative Hydrogen Production from Paperboard Mill Wastewater

A. Farghaly and A. Tawfik

Abstract:

NULL

Keywords:

NULL

Published In:

The Sixth Asian Conference on Sustainability, Energy & the Environment, Kobe, Japan; NULL; NULL
Influence of Using Tween 80 and Polyethylene Glycol 6000 on Hydrogen Fermentative of Paperboard Wastewater

A. Farghaly and A. Tawfik

Abstract:

NULL

Keywords:

NULL

Published In:

International Conference of Industrial Academia Collaboration, Cairo, Egypt, NULL, NULL