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Proposal of upgrading Isfahan north wastewater treatment plant: An adsorption/bio-oxidation process with emphasis on excess sludge reduction and nutrient removal (Article)

Amin, M.M.^{a,b}, Taheri, E.^{a,b}, Ghasemian, M.^{a,b}, Puad, N.I.M.^c, Dehdashti, B.^{a,b}, Fatehizadeh, A.^{a,b} ✉ 🔍

^aEnvironment Research Center, Research Institute for Primordial Prevention of Non-communicable Disease, Isfahan University of Medical Sciences, Isfahan, Iran

^bDepartment of Environmental Health Engineering, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran

^cBioprocess and Molecular Engineering Research Unit (BPMERU), Department of Biotechnology Engineering, Kulliyah of Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

Abstract

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There is a rising challenge in managing the activated sludge process due to excess sludge disposal from the wastewater treatment plant and inadequate effluent quality due to the stricter standard of effluent quality. Hence, the incorporation of oxic-settling-anoxic process and ultrasonic waves in the return sludge line was proposed to assess the excess sludge reduction and nutrient removal in the adsorption/bio-oxidation activated sludge process as

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a proposal upgrading . The results indicated that sludge production from adsorption/bio-oxidation process could be reduced using oxidant-settling-anoxic and ultrasonic by 50% at each studied mixed liquor suspended solids level. Compared to the adsorption/bio-oxidation process, the total and soluble chemical oxygen demand removal efficiencies in adsorption/bio-oxidation process with oxidant-settling-anoxic and ultrasonic slightly decreased suggesting a lysis phenomenon. During the operation of adsorption/bio-oxidation process with oxidant-settling-anoxic and ultrasonic, the total Kjeldahl nitrogen removal efficiency improved in A and B stages, with $38.3 \pm 8.1\%$ and $83.1 \pm 6.5\%$ versus $36.8 \pm 14.5\%$ and $75.1 \pm 7.3\%$, respectively. According to the stoichiometric calculations, in B stage of adsorption/bio-oxidation process with oxidant-settling-anoxic and ultrasonic, the soluble available ultimate biochemical oxygen demand and net NO_3^- produced for denitrification were 69.5 and 43.8 mg/L, respectively. Overall, the experimental data revealed that the adsorption/bio-oxidation process with oxidant-settling-anoxic and ultrasonic produced lower excess biological sludge and better total Kjeldahl nitrogen removal efficiency compared to the adsorption/bio-oxidation system alone. © 2020 Elsevier Ltd

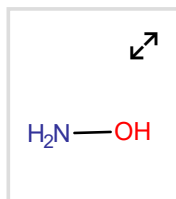
SciVal Topic Prominence ⓘ

Topic: Sludge | Activated sludge | Sludge yield

Prominence percentile: 79.887 ⓘ

Chemistry database information ⓘ

Substances



Author keywords

Activated sludge process Excess sludge reduction OSA process Ultrasonic

Indexed keywords

Evaluation of a biological wastewater treatment system combining an OSA process with ultrasound for sludge reduction

Romero-Pareja, P.M. , Aragon, C.A. , Quiroga, J.M.
(2017) *Ultrasonics Sonochemistry*

The effects of a full-scale anaerobic side-stream reactor on sludge decay and biomass activity

Velho, V.F. , Andreottola, G. , Foladori, P.
(2019) *Water Science and Technology*

Effects of side-stream ratio on sludge reduction and microbial structures of anaerobic side-stream reactor coupled membrane bioreactors

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(2017) *Bioresource Technology*

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Adsorption Biochemical oxygen demand Efficiency Effluent treatment Effluents
Nitrogen removal Nutrients Oxygen Sewage pumping plants Sludge disposal
Ultrasonics Wastewater disposal Wastewater treatment Water quality
Water treatment plants

Engineering uncontrolled terms

Biological sludge Excess sludge reduction Mixed liquor suspended solids Nutrient removal
Sludge production Soluble chemical oxygen demands Total Kjeldahl nitrogens
Wastewater treatment plants

Engineering main heading:

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