Publication Date
November 25, 2020

ICRNES'2020

International Conference on Research in Natural and Engineering Sciences

November 14 – 15, 2020

Konya,Turkey

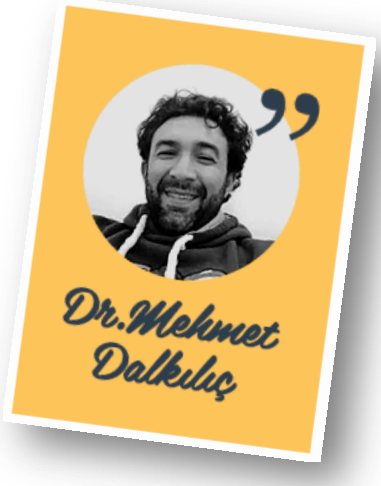
Oral Presentations

Proceedings Book

www.insackongre.com

ISBN: 978-625-7767-86-6

Editörün Notu/ Editor's Note



14-15 Kasım 2020 tarihlerinde düzenlenen Uluslararası Doğa ve Mühendislik Bilimlerinde Araştırma Konferansı (ICRNES 2020) Kongremiz yoğun bir katılım ile gerçekleştirilmiştir.

Kongremizde bilim dünyasının önemli isimleri akademik çalışmalarını sunmuş ve tartışma ortamı bulmuşlardır. Kongremize bizzat katılarak bizleri onurlandıran yabancı davetli konuşmacılarımıza özellikle teşekkür ederim.

Kongerimize katılan ve ilgi gösteren tüm akademisyenlerimize teşekkür eder, gelecek kongrelerimize de katılımlarından onur duyarız.

International Conference on Research in Natural and Engineering Sciences (ICRNES 2020) held on November 14-15, 2020 with a great participation.

Important names of the scientific world presented their academic studies and found a discussion ambience. Especially, I would like to thank foreign invited speakers who joined us in insac congress.

We would like to thank all of academics who have participated in insac congress.

Doç. Dr. Mehmet Dalkılıç

International Conference on Research in Natural and Engineering Sciences (ICRNES 2020)

Electrochemical Removal of Ammonia in Wastewater (Secil Tutar Oksuz)

Electrochemical Removal of Ammonia in Wastewater

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Abstract: *The principal objective of wastewater treatment is to allow human and industrial effluents to be disposed of without any danger to human health or unacceptable damage to the natural environment. The composition of wastewater can be complicated depending on the purpose and it contains organic matters, ammonia, phenols, cyanide and other aromatic organics which are treated with coagulation, oxidation, adsorption, and etc. However, the main disadvantage of these technologies is that they are lacking of effectiveness if applied individually. For example, biological treatment is the most common and oldest treatment process used to treat municipal and industrial wastewater to produce high degree of purity quality of the effluent, but these systems are generally energy intensive and require high investment, maintenance, operating costs, and also produce large amount of sludge, which itself requires treatment. In addition, these systems cannot be employed for the most of the industrial effluents since they are bio-toxical and recalcitrant to biodegradation, so fails to eliminate chemical oxygen demand, ammonia and color such as textile wastewater. Recently, the electrochemical treatment technique has been considered as a promising alternative for the treatment of wastewater due to its unique advantages such as high treatment efficiency, environmental compatibility, versatility, robustness, and amenability to automation. In this study, the focus is given to the direct electrochemical oxidation of ammonia in wastewater since this process has shown that is very effective, compact and economically practical compared to other technologies. In this context, an electrochemical reactor designed which consists of a graphite felt working electrode and a counter electrode and a saturated Ag/AgCl electrode as reference electrode and operated under batch mode with recirculation at a flow rate of 10 ml/min. The potential of working electrode was controlled relative to reference electrode using a potentiostat. To study the rate of anodic oxidation of wastewater, the working electrode was polarized at 2V versus Ag/AgCl. The electrochemical cells was sampled every 30 minutes to monitor ammonia (NH_4^+) concentration. After 4 hours of treatment, only 21.9% of ammonia is oxidized via electrochemical oxidation. Given the results of the study of ammonia oxidation were confirmed that the oxidation of ammonia are possible with direct anodic oxidation and proved that electrochemically NH_4^+ removal an alternative method to biological nitrification.*

Key words: *electrochemical treatment, ammonia removal, wastewater treatment*