

Accepted Manuscript

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PII: S1385-8947(16)31900-3
DOI: <http://dx.doi.org/10.1016/j.cej.2016.12.127>
Reference: CEJ 16292

To appear in: *Chemical Engineering Journal*

Received Date: 22 November 2016
Revised Date: 28 December 2016
Accepted Date: 29 December 2016



Please cite this article as: B. Nath Bhadra, I. Ahmed, S. Kim, S. Hwa Jung, Adsorptive removal of ibuprofen and diclofenac from water using metal-organic framework-derived porous carbon, *Chemical Engineering Journal* (2016), doi: <http://dx.doi.org/10.1016/j.cej.2016.12.127>

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Adsorptive removal of ibuprofen and diclofenac from water using metal-organic framework-derived porous carbon

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Abstract

A metal-organic framework (MOF) (here, zeolitic-imidazolate framework-8) was pyrolyzed at different temperatures (800, 1000, and 1200 °C) in order to prepare porous carbons derived from MOF (PCDMs). Adsorption of ibuprofen (IBP) and diclofenac sodium (DCF) from aqueous solutions was carried out over the produced PCDMs and compared with that over pristine MOF and commercial activated carbon (AC). Among the tested adsorbents, the PCDM prepared at 1000 °C (PCDM-1000) was found to be the best candidate for both IBP and DCF. The maximum adsorption capacities of IBP (320 mg/g) and DCF (400 mg/g) over PCDM-1000 were ~ 3 and ~ 5 times, respectively, of

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