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Bisphenols: Application, Occurrence, Safety, and Biodegradation Mediated by Bacterial Communities in Wastewater Treatment Plants and Rivers

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1 **BISPHENOLS: APPLICATION, OCCURRENCE, SAFETY, AND**
2 **BIODEGRADATION MEDIATED BY BACTERIAL COMMUNITIES IN**
3 **WASTEWATER TREATMENT PLANTS AND RIVERS**

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12 **Keywords:** bisphenols, biodegradation, bacteria, wastewater treatment plant, river

13
14 **Abstract**

15 Numerous data indicate that most of bisphenols (BPs) are endocrine disrupters and
16 exhibit cytotoxicity, neurotoxicity, genotoxicity and reproductive toxicity against
17 vertebrates. Nevertheless, they are widely applied in material production what result in
18 their ubiquitous occurrence in ecosystems. While BPA is the most frequently detected in
19 environment, BPAF, BPF and BPS are also often found. Ecosystem particularly exposed
20 to BPs pollution is industrial and municipal wastewater being a common source of BPA
21 in river waters. Different techniques to remove BPs from these ecosystems have been
22 applied, among which biodegradation seems to be the most effective. In this review the
23 current state of knowledge in the field of BPs application, distribution in the environment,
24 effects on animal and human health, and biodegradation mediated by bacterial
25 populations in wastewater treatment plants and rivers is presented.

26
27 **1. Introduction**

28 In the last two decades there has been a growing awareness of the possible unfavorable

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