

## A comparison between performances of bio-retention and rain-garden methods in runoff quality improvement

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## Abstract

Low impact development- best management practices (LID-BMPs) method is one of the most efficient improve water quality methods. In this method can be used from eight LID controls in order to improve quality runoff that the significant impact on runoff quality. In most of the article from this method to reduce and control runoff used. But in a small number of articles separately the effect these LID controls on quality runoff considered. That's why in this article presented a comparison between performances of bio-rotation and rain-garden methods in runoff quality improvement The results of this comparison demonstrate that the performance of bio-retention in runoff quality in same conditions than rain garden is better.

Key words: LID-BMPs, water quality, runoff, bio-retention, rain garden

## **1. Introduction**

Quality of runoff one of the most important issues that many researchers on about have done research that also they have reached significant results. For example, Mohammad Nayeb Yazdi et al. in 2019 from container nursery determined water quality [1]. Jingqiu Chen et al in 2019 presented evaluation of the effectiveness of green infrastructure on hydrology and water quality in a combined sewer overflow community [2]. M. Kayhanian et al in 2019 considered application of permeable pavements in highways for stormwater runoff management and pollution prevention [3]. Snežana Gavrić et al in 2019 presented a review about Processes improving urban stormwater quality in grass swales and filter strips [4]. A.R. Omer et al in 2019 analyzed the costs of using five TWR systems to reduce solids, nutrients, and retain water [5]. Guowangchen Liu et al in 2019 suggested a fast and robust framework for providing the optimal design of LID practices by coupling a physically-based model, the Markov chain, with the multi-objective shuffled frog leaping algorithm (MOSFLA) [6]. Jingwei Hou et al in 2019 simulated elements of stormwater processes — short-duration heavy rainfall, rainstorm intensity, drainage networks, surface temperature, the scouring process and the cumulative process of pollutants (SS, COD, TP and