Abstract:

Water and wastewater treatment are one of the most important issues concerning nations throughout the world especially in developing countries which basically characterized by deficiency of basic sanitation facilities in particular, and weakness of infrastructure in general. Accordingly, decentralized wastewater treatment systems rather than centralized systems might be economically and technically more efficient and able to conduct sustainable urban development, since it showed competitive costing, simpler technologies, high efficiency with good operation and maintenance costs.

The goal of this research was to examine the potential use of anaerobic baffled reactor (ABR) followed by a gravel bed filter (GBF) towards domestic wastewater treatment and to observe the effect of this coupling on the effluent quality. The efficiency of the system (ABR/GBF) was evaluated through testing the wastewater that is generated from the nearby primary schools (Yaffa and Al-Estiklal). The study showed that the wastewater treatment plant was receiving medium to high strong influent with high organic loading rate (COD 697.5 mg/L, BOD_5 323 mg/L)**.**

During the period of the study, samples were collected biweekly and analyzed for different chemical, physical and biological parameters including: BOD, COD, TOC, TNb, TSS, EC, FC and TC.

This study revealed that the use of both the ABR and GBF could be promising in conducting a sustainable on site wastewater treatment with high average removal efficiencies of organic pollutants (33%-89% BOD, 55%-97% COD, 60% TOC, 46%TSS). The microbial analysis indicated a high reduction of total coliform and fecal coliform.