عنوان مقاله:

The Usage of Artificial Bee Colony Algorithm for Optimization of Reinforced Concrete Cantilever Retaining Walls

محل انتشار:

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خلاصه مقاله:

In this paper, the optimization of reinforcement cantilever concrete retaining walls are performed by artificial bee colony (ABC) algorithm for wall cost and weight. This algorithm has been inspired from intelligent foraging behavior of the honey bee swarm. In order to investigate the capability of this algorithm, the obtained results are compared with the other literature. Based on these results, the ABC algorithm is able to minimize the wall cost and weight. Another research is performed to investigate the effect of optimization in comparison with conventional manual design. It shows that the optimization can significantly reduce the cost and weight of the wall. Moreover, two kinds of reinforcement concrete cantilever retaining walls with more variables and constraints are presented and compared with each other. The suggested walls are T-shape wall with variables thickness in stem and normal T-shape wall. These comparisons are performed for two objective function; cost and weight of the wall. In addition, the effect of initial parameters such as unit weight of soil and stem height are investigated by sensitivity analysis. All results show that the ABC algorithm is robust to optimize the cost and weight of reinforcement concrete cantilever retaining wall

کلمات کلیدی:

reinforcement concrete cantilever retaining wall, bee colony algorithm, optimization, sensitivity analysis

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