will enhance its efficiency and speed up the processing for solving complex optimization problems. Moreover, its complexity is low as compared to other versions of the standard Flower Pollination Algorithm.

IV. Conclusion

In the last few decades, we have seen many applications of nature-inspired meta-heuristic techniques in solving various types of non-polynomial problems. The complex optimization problems have drawn the attraction of researchers due to a wide variety of issues that possess the nature of optimization. Therefore, new optimization algorithms have been introduced to achieve better results, for example gradient-based and stochastic techniques, but swarm intelligence has become the most useful tool among evolutionary algorithms. The standard flower pollination is also one of the best nature-inspired metaheuristic algorithms. It has many advantages yet there are a few drawbacks over other swarm intelligence techniques. Various types of modifications are introduced to overcome these drawbacks, but most of these approaches fail in obtaining the most optimum solution for some complex problems. In this study, the flower pollination algorithm is improved by modification in local pollination using the swap operator and dynamic switch probability. It has proved to be a robust optimization method with fewer parameters. The above results prove that the proposed algorithm comparatively performed better than the flower pollination algorithm, Genetic Algorithm, Simulated Annealing and Bat Algorithm, Firefly Algorithm and Modified Flower Pollination Algorithm. But the research shows that in optimization problems there is a room for further improvement.

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