3.2 Main procedure

Brachytrupes position will be located
Female Brachytrupes has to be chosen
Fitness value of each Brachytrupes has to be calculated
With respect to position choose the most excellent Brachytrupes $f_{best\_Brachytrupes}$
Set gbest_ $_{Brachytrupes}$ as the present $f_{best\_Brachytrupes}$ and in the preliminary generation $g_{best\_Brachytrupes}$-$f_{best\_Brachytrupes}$
While (stop criteria is not met)
Then
Sound for mating – (step1)
Male Brachytrupes to mate with female Brachytrupes – (step2)
Sound for resentment with probability P – (step3)
Fitness value will be calculated
From the innovative positions choose the $f_{best\_Brachytrupes}$,
Modify $g_{best\_Brachytrupes}$ with the present $f_{best\_Brachytrupes}$. When $f_{best\_Brachytrupes} > g_{best\_Brachytrupes}$,
End while
Revisit to comprehensive best Brachytrupes at cessation
End

4. SIMULATION RESULTS

Performance of the proposed Brachytrupes Algorithm (BA) has been validated by tested in standard IEEE 57 bus system [15]. Total active and reactive power demands in the system are 1248.23 MW and 334.16 MVAR. Generator data the system is given in Table 1. The optimum loss comparison is presented in Table 2. Figure 1 gives the comparison of active power loss.

Table 1. Generator data

Generator No	Pgi minimum	Pgi maximum	Qgi minimum	Qgi maximum
1	25.00	50.00	0.00	0.00
2	15.00	90.00	-17.00	50.00
3	10.00	500.00	-10.00	60.00
4	10.00	50.00	-8.00	25.00
5	12.00	50.00	-140.00	200.00
6	10.00	360.00	-3.00	9.00
7	50.00	550.00	-50.00	155.00

Table 2. Comparison of losses

Parameter	CLPSO [17]	DE [16]	GSA [16]	OGSA [18]	SOA [17]	QODE [16]	CSA [19]	BA
PLOSS (MW)	24.5152	16.7857	23.4611	23.43	24.2654	15.8473	15.5149	14.0412

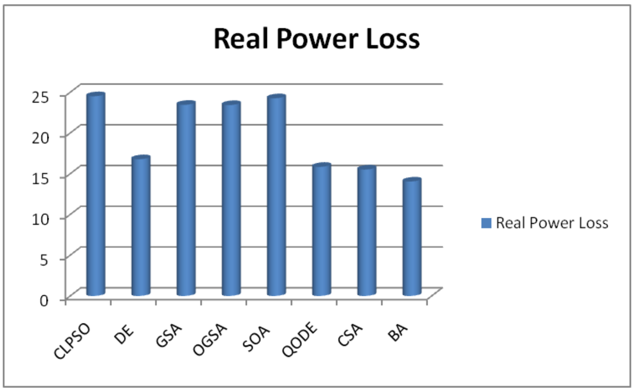

Figure 1. Comparison of active power loss

Then the performance of the proposed Brachytrupes Algorithm (BA) has been tested in standard IEEE 300 bus system [15]. Table 3 shows the comparison of real power loss obtained after optimization. Figure 2 gives the comparison of real power loss.

Table 3. Comparison of real power loss

Parameter	EGA [20]	EEA [20]	CSA [19]	BA
PLOSS (MW)	646.2998	650.6027	635.8942	625.9864

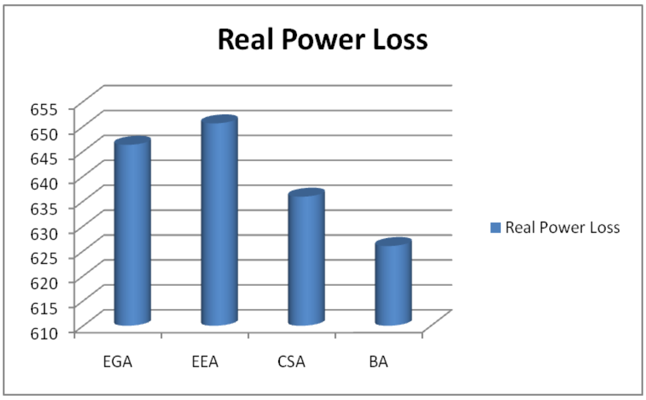

Figure 2. Real power loss comparison

5. CONCLUSION

In this paper Brachytrupes Algorithm (BA) successfully solved the optimal reactive power problem. Projected algorithm presumes that the probability of a Brachytrupes sound for resentment is p which is between 0 and 1. The convincing Brachytrupes takes consign of the solution and eradicate the loser Brachytrupes. Female Brachytrupes are seduced by male Brachytrupes sound for mating while remaining male Brachytrupes will move away. Brachytrupes will mate and generate offspring. They progress to an innovative place, which means they are taken to enhanced location in the search space. Proposed Brachytrupes

Algorithm (BA) has been validated in standard IEEE 57, 300 test systems. Real Power loss has been reduced when compared to other standard reported algorithms.

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