CLAIMS

1. A genetically engineered *Escherichia coli* microorganism that produces muconic acid from a non-aromatic carbon source comprising

at least one exogenous gene encoding for 3,4-dihydroxybenzoic acid decarboxylase,

at least one exogenous gene encoding for UbiX protein that increases the activity of said 3,4-dihydroxybenzoic acid decarboxylase,

at least one exogenous gene encoding for catechol 1,2-dioxygenase, and

at least one exogenous gene encoding for 3-dehydroshikimate dehydratase selected from the group consisting of selected from *aroZ*, *qa4*, *asbF*, and *quiC*.

2. The genetically engineered microorganism of claim 1, further comprising at least one exogenous gene encoding for 3-dehydroquinate synthase.

3. The genetically engineered microorganism of claim 1, further comprising at least one exogenous gene encoding for deoxyarabino-heptulosonate.

4. The genetically engineered microorganism of claim 1, further comprising at least one exogenous gene encoding for transketolase.

5. The genetically engineered microorganism of claim 1, further comprising at least one exogenous gene encoding for 3-dehydroquinate dehydratase.

6. The genetically engineered microorganism of claim 1, further comprising at least one exogenous gene encoding for pyruvate carboxylase and a mutation of a phosphoenol pyruvate carboxylase gene to a decrease or elimination of phosphoenol pyruvate carboxylase activity.