CLAIMS

1. A genetically engineered microorganism that produces muconic acid from a non-aromatic carbon source comprising at least one exogenous gene encoding for 3,4-dihydroxybenzoic acid decarboxylase and at least one gene that codes for a protein that increases the activity of said 3,4-dihydroxybenzoic acid decarboxylase selected from a *kpdB* gene encoding for a KpdB protein or a *ubiX* gene encoding for a UbiX protein.

2. The genetically engineered microorganism of claim 1, wherein said genetically engineered microorganism is a bacterium.

3. The genetically engineered microorganism of claim 1, wherein said genetically engineered microorganism is *Escherichia coli*.

4. The genetically engineered microorganism of claim 1, further comprising one or more exogenous genes selected from the group consisting of *aroZ, qa-4, asbF, quiC* and *catAX*.

5. The genetically engineered microorganism of claim 1, further comprising one or more exogenous genes selected from the group consisting of *aroB, aroD, aroF, aroG, aroH, tktA, talB, rpe*, and *rpi*, wherein said one or more exogenous genes encode one or more proteins that function in a shikimic acid pathway.

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

7. A genetically engineered *Escherichia coli* strain 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 gene that codes for a protein that increases the activity of said 3,4-dihydroxybenzoic acid decarboxylase selected from a *kpdB* gene encoding for a KpdB protein or a *ubiX* gene encoding for a UbiX protein, a mutation of a *pykF* gene to a decrease or elimination of the pyruvate kinase activity and at least one modified *aroG* exogenous gene that codes for an AroG protein which is resistant

to feedback inhibition, wherein at least one modified *aroG* exogenous gene is inserted at physical location 2160 in the *Escherichia coli*,

wherein said genetically engineered *Escherichia coli* strain produces at least 60 g/L of muconic acid in 72 hours.

8. The genetically engineered *Escherichia coli* strain of claim 7, further comprising one or more exogenous genes selected from the group consisting of *aroZ*, *qa-4*, *asbF*, *quiC* and *catAX*.

9. The genetically engineered *Escherichia coli* strain of claim 7, further comprising at least one exogenous gene encoding a pyruvate carboxylase and a mutation of the phosphoenol pyruvate carboxylase gene.