Claims

1. A process for the production of methyl methacrylate (MMA), the process comprising the steps of:

    a) providing a microorganism in a fermentation medium, under conditions which said microorganism will produce a C_3-C_{12} methacrylate ester;
    b) providing an organic phase in contact with the fermentation medium, said organic phase including C_3-C_{12} methacrylate ester in a higher concentration than that in the fermentation medium;
    c) removing organic phase containing the said C_3-C_{12} methacrylate ester from contact with the fermentation medium; and
    d) transesterifying the removed C_3-C_{12} methacrylate with methanol, optionally after separation from the organic phase, to produce methyl methacrylate.

2. The process according to claim 1 wherein the methacrylate ester is selected from a C_3-C_{12} alkyl, hydroxyalkyl, alkenyl, alkylaryl or alkenylaryl methacrylate ester.

3. The process according to claim 1 or 2 wherein the methacrylate ester is selected from n-propyl, isopropyl, isobutyl, n-butyl, t-butyl, isopentyl, hexyl, cyclohexyl, heptyl, octyl, 2-ethylhexyl, decyl, dodecyl, hydroxyethyl, hydroxypropyl, isobornyl, allyl or cinnamyl methacrylate, more preferably, isopropyl or n-butyl methacrylate.

4. The process according to any preceding claim where the microorganism comprises *E. coli*, *Corynebacterium glutamicum*, *Pseudomonas fluorescens* or *Pseudomonas putida*.

5. The process according to any preceding claim wherein the microorganism is genetically modified to produce more C_3-C_{12} methacrylate ester than the wildtype.

6. The process according to any preceding claim wherein the microorganism expresses one or more enzymes which can convert isobutyryl-CoA to methacrylyl-CoA.

7. The process according to any preceding claim wherein the microorganism expresses one or more enzymes which can convert methacrylyl-CoA to a C_3-C_{12} methacrylate ester, more typically, a C_3-C_8 methacrylate ester, generally in the presence of a suitable C_3-C_{12}, more typically, C_3-C_8 alcohol.