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### Eugenol-based optically active polyacetylene as new smart material

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Eugenol (4-allyl-2-methoxyphenol) is a main component (80 % wt) of clove oil, which is mainly produced in Indonesia. It is widely used as perfumes, antioxidants, drugs, foods and taste items. On the other hand, polyacetylene and its derivatives are interesting, because polyacetylenes possess alternating double bonds in the main chain, which endow them with electrical conductivity, chemical reactivity and gas permeability. In this work, eugenol-based optically active helical polyacetylenes have been synthesized with transition metal catalyst. They are soluble in common organic solvent, moderate molecular weight and took a helical structure with a predominantly one handed screw sense. The polyacetylenes with eugenol moiety are applicable as electrical conductive material, chiral recognition material, catalyst for asymmetric induction and new smart material.

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