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Bioplasticizers based on modified plant oils

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PURPOSE OF THE ABSTRACT

Nowadays the acute problem of environmental pollution arises and the wastes usually are not able to biodegradation, for instance, it relates to plastics of petrochemical origin. In addition, these plastics can contain toxic additives that lead to soil quality decreasing. Consequently, it is of current interest to develop environmentally friendly materials, which can be biodegraded in bacterial medium and don't hurt to environment. Besides, it has been appeared a tendency to developing safety technologies on materials production that exclude harmful wastes and applying of toxic and dangerous substances.

This research is devoted to developing of scientific bases on environmentally safety chemicals production by means of plant oils derivatives (fatty acid methyl esters ? FAME) aerobic oxidation. Air oxygen is applied as a single reagent that is cheap as well as safety. It has been demonstrated the mixtures obtained through radical aerobic oxidation of FAME from different vegetable oils have a rather good plasticizing ability to polyvinylchloride that is widespread material for numerous goods.

Kinetic regularities of the process of oxidation of FAME by air oxygen were revealed, products obtained were identified; it was developed universal scheme of the process, which is include the general directions of all the reactions proceeding in the system. This scheme developed is relevant to get mathematical description of aerobic oxidation of FAME with different composition.

It is also substantiated theoretical significance of this investigation that is concerning to developing of experience of olefin compounds radical oxidation.

FIGURES

FIGURE 1

FIGURE 2

KEYWORDS

fatty acid methyl esters | bioplasticizers | oxidation | aerobic

BIBLIOGRAPHY