# DIESEL ENGINE PERFORMANCE AND USING OF ALTERNATIVE FUELS

Georgiana-Valentina GĂVAN[1]

**Rezumat.** *Această lucrare prezintă un nou concept privind combustibilii. Rezervele mondiale de resurse fosile sunt în scădere, așa că se caută alternative pe termen lung și cu impact redus. În lucrare am specificat alternative pentru înlocuirea motorinei și impactul acestora asupra motorului prin compresie.*

**Abstract.** *This paper presents a new concept regarding fuels. The world's reserves of fossil resources are declining, so long-term and low-impact alternatives are being sought. In the paper we specified alternatives for diesel replacement and their impact on the engine by compression.*

**Keywords**: Diesel, Engine performance, Alternative fuels

## 1. Introduction

Global energy demand has increased over the last two decades due to the growing number of transport and industrial vehicles in need of conventional fuels. As oil reserves dwindle and prices rise, researchers and engine manufacturers are carefully looking for alternative and environmentally friendly fuels, such as vegetable oil, ethanol, etc. Biomotor is a type of biodegradable and renewable fuel that is produced from vegetable oil or animal fats and can be used for diesel engines either directly or after conversion to methyl ester by transesterification.

Biofuels are unconventional, alternative fuels produced from bioregenerable sources from nature (biomass), which, after burning in the engine, produce less polluting emissions that would affect the environment. The term "biofuel" covers "a wide range of fuels derived from biomass, including solid biomass, liquid fuels and various types of biogases". Biofuels have come to the attention of the public and the scientific world with rising oil prices, the need to ensure energy security and the concerns of climate change [1], [2].

Biofuels are neutral in terms of the greenhouse effect because when they are burned in the atmosphere, the equivalent amount of carbon dioxide is released which was photosynthetically fixed by plants when the plant raw material from which the biofuels were obtained was produced. Research in recent years has shown that solar energy stored in biomass can be a renewable and non-polluting source of energy, representing a viable alternative to fossil fuels. Biofuels are "any solid, liquid or gas obtained from biomass that can be used as fuel (Directive 2003/30 / EC of the

[1] CMP master student, University POLITEHNICA of Bucharest, IIR faculty, Spl. Independenței 313, sector 6, ZipCode 060042, E-mail: georgiana.gavan@yahoo.com