Opinion



# Alternative energy resources: *Brassica Napus* for biofuel production

## Opinion

While the hole developed world is currently warring about one of the worst financial crisis that we all facing, one even more terrifying crunch is getting bigger day by day as Earth seems not to be able to replenish the resources humans are using for their everyday needs . In fact every year we consume much more energy than earth's resources could replenish. Researchers claim that non-renewable energy resources such as oil and gas are no longer adequate. Scientists have already predicted that by 2030, if we keep spending energy in this rhythm without replenish it, our planet will not longer be enough to sustain our lifestyle. However, we are not totally helpless. Agriculture biotechnology and engineering could be able to partly decrease the depth by using oil crops as base for biodiesel production. Brassica napus, widely known as rapeseed, is the most productive oil crops Europe mainly uses for biodiesel production in fact almost 65% of biodiesel production in Europe comes from rapeseed feedstock. Feed stocks for biofuel production can result from plants cultivated directly for this use or from crops parts. In this case plants are being cultivated for feed or any other use, while their wastes are being used for biofuel production. Furthermore, oil crops can be use as alternatives to petroleum-based substances in order to reduce the fossil fuel use, nevertheless, chemical composition of these fuels is highly leveled.

### Brassica napus, B. rapa, B. juncea

Brassica's commercial supply is dominated by two species, *Brassica napus* L. and *B. rapa* L. Both contain spring and winter forms that are distinguished by vernalization requirement. Seeds of these species contain 40 % or more oil. In 2013/2014 rape seed holds ca. 14% of the world production of major oil crops.[1,2] According to FAO statistics (2014), rapeseed ranked number 14 in agricultural commodity production in Europe in 2012. Although many farmers still have doubts about cultivating crops for biodiesel production thinking of it as a risky action, agriculturists assure that oil crops cultivation is similar to any other one they may be used to. Brassica for example grows excellent in temperature not beyond 30 degrees while some species resist under -20 degrees. The plant does not have any specific need as for the soil structure, it grows well in any type of soil from 5, 5 up to 8,3 Ph levels, as soon as there is not poor natural internal drainage so as for the crop root to be adequate aerationed.

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Crop's yield is 120-210 kg per acre while from this amount 40-70kg oil could be extracted (almost 50% oil production). Oil can be extracted by crushing the seed and sqeezing the oil out. This oil tranfesterified to make biodiesel. The prices are usually specified under contracts between the farmer and the oil production company, however according to farmer prices range between 40-45 Euros per kilo. In addition to Brassica napus, many other plants produce oil which could be used as biodiesel. Soybean, canola, mustard, camelina, safflower, and tropical oilseed trees like palm tree and coconut are already being used for this purpose. Yet, researches are being held about three more oilseed crops that could be used as biodiesel feedstock, lesquerella, pennycress and hazelnuts might help us increase our future biofuel production.

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## Conflict of interest

The author declares no conflict of interest.

## References

1. *FAO Food Outlook*. FAO; 2015.
2. *Biodiesel Fuel Feed stocks*. Berckley Biodiesel; 2014.