



Nitrogen isotopic signature – a valuable marker for organic production

Madjar Roxana Maria¹, Scăețeanu Vasile Gina^{1*}, Ion Violeta Alexandra², Moț Andrei^{1,2}

¹University of Agronomic Sciences and Veterinary Medicine, Faculty of Agriculture, 59 Marasti Blvd., Bucharest, Romania;

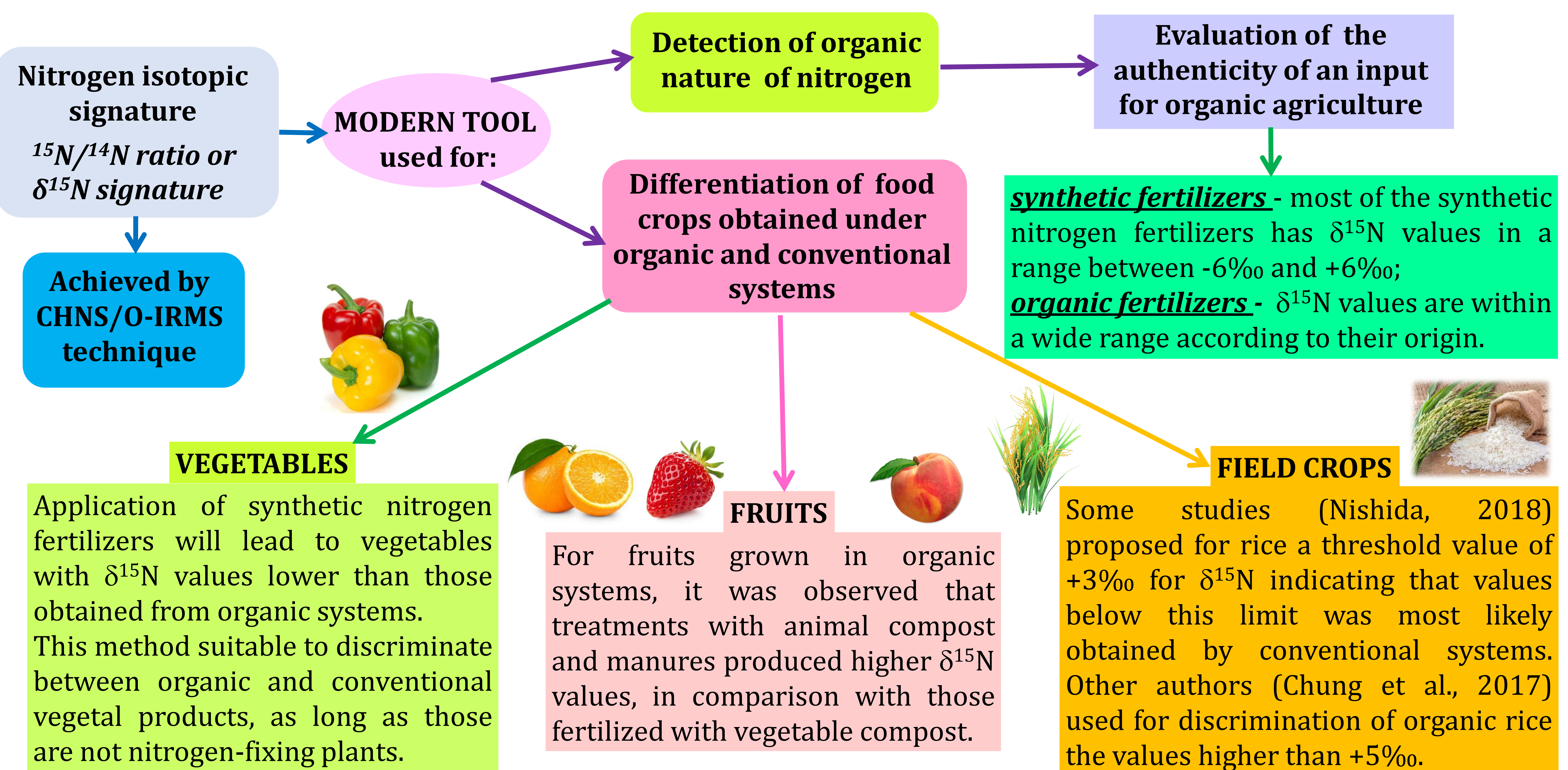
²University of Agronomic Sciences and Veterinary Medicine, Research Center for Studies of Food Quality and Agricultural Products, 59 Marasti Blvd., Bucharest, Romania. * Corresponding author: ginavasile2000@yahoo.com

Abstract

Organic products has higher price than those grown in conventional system, and this is due higher production costs. Therefore, consumers' concerns whether organic products are grown by application of accepted inputs are fully justified. An important tool to discriminate between products obtained by organic and conventional systems is **nitrogen isotopic signature** ($^{15}\text{N}/^{14}\text{N}$ ratio or $\delta^{15}\text{N}$ signature) of crops.

This paper is based on analysis of the results reported in literature concerning the use of nitrogen isotopic signature as an important marker used to distinguish if organic labeled food products are indeed obtained respecting imposed standards for organic agriculture.

The organic products bearing organic label must comply certain requirements related to fertilization practices and used inputs. Since synthetic nitrogen fertilizers are not allowed in organic agriculture, measurement of the nitrogen isotopic ratio is suitable to discriminate between conventional and organic crops and this is based on the supposition that application of synthetic nitrogen fertilizers ($\delta^{15}\text{N} \sim 0\text{‰}$) will lead in the case of crops to nitrogen isotopic signatures lower than those organically fertilized.



Conclusions

The use of nitrogen isotopic signature ($^{15}\text{N}/^{14}\text{N}$ ratio or $\delta^{15}\text{N}$ signature) is a valuable marker used **to identify** the organic nature of an input, mainly of those used in organic agriculture, **to distinguish** between organic and conventional obtained vegetal products and if organic products labeled as such are indeed organic and along with other chemical quality parameters **to authenticate** the geographical origin of food products.

References

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Acknowledgement

This paper is financially supported by project ADER 1.4.4. *Identification, evaluation, testing, development and validation of analysis methods of nutrients and contaminants from inputs usable in organic agriculture* and it is consistent with research directions and guidelines specified by Ministry of Agriculture and Rural Development in aforementioned project.