



III International Scientific Conference “Sustainable and efficient use  
of energy, water and natural resources – SEWAN-2021”

ГАЛАХИМ



# The Effect of Enzyme Preparations on the Yield of Carotenoids from Plant Materials

**Angelina Baskovtseva, Ulbosyn Kyzdarbek, Nadezhda Barakova V.**

**ITMO University, Faculty of Biotechnology**

Saint-Petersburg, April 19-24, 2021

## The Effect of Enzyme Preparations on the Yield of Carotenoids from Plant Materials

Angelina Baskovtseva, Ulbosyn Kyzdarbek, Nadezhda Barakova V.  
ITMO University, Faculty of Biotechnology

**Keywords:**

Carotenoids, plant materials,  
enzyme preparations

### Research Objective:

**Increase the number of carotenoids obtained from plant materials with an enzyme preparations**

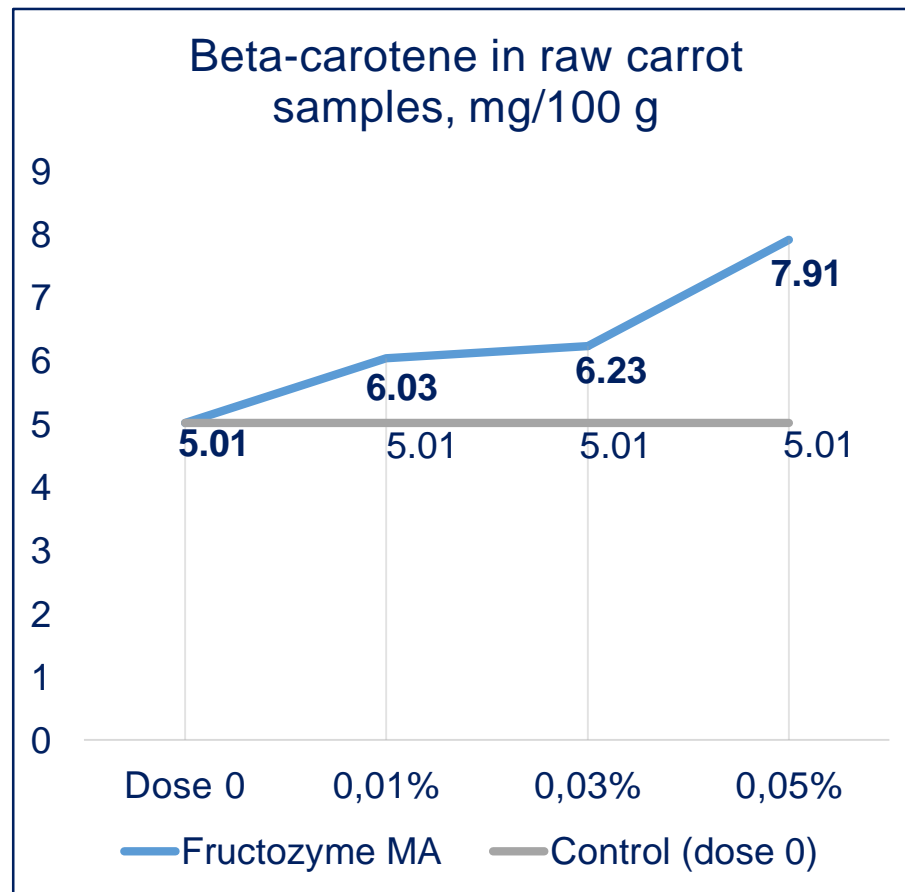
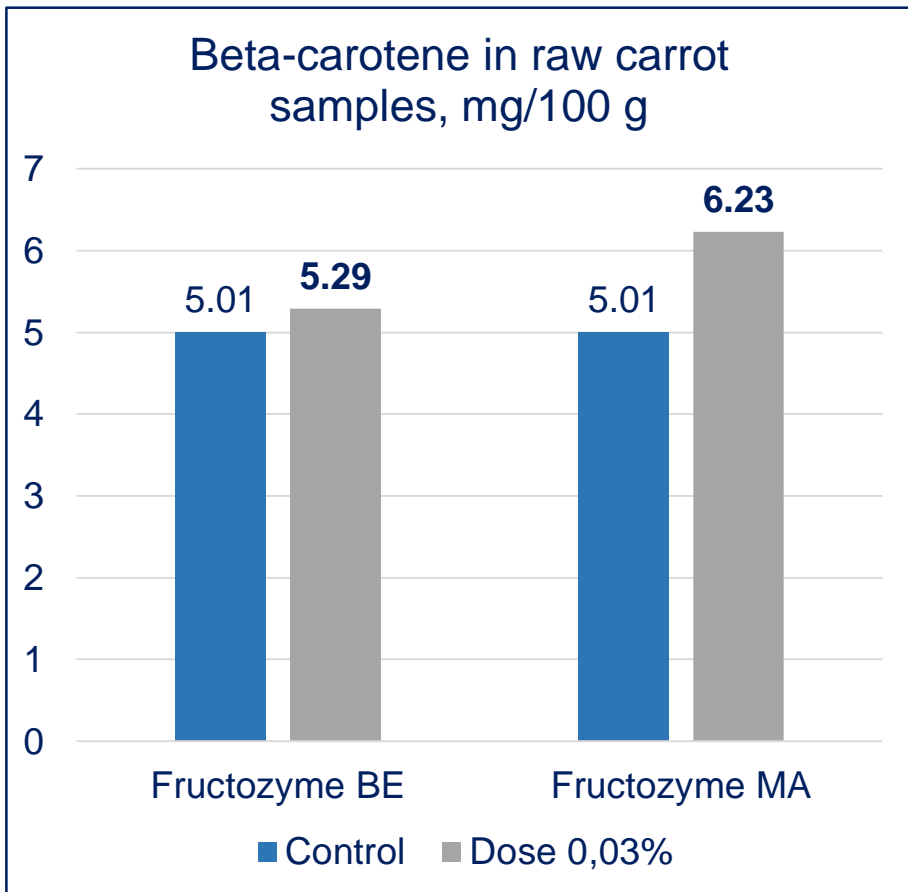
Carotenoids are pigments produced by photosynthetic organisms. They are not synthesized by humans but are necessary for the normal functioning of the body, so they must be supplied with food. Sources of carotenoids are red carrots, rowan berries, celery, cloudbberries, red peppers, green onions, tomato, pumpkin.

### The Effect of Enzyme Preparations on the Yield of Carotenoids from Plant Materials

Angelina Baskovtseva, Ulbosyn Kyzdarbek, Nadezhda Barakova V.  
ITMO University, Faculty of Biotechnology

**Keywords:**  
Carotenoids, plant materials,  
enzyme preparations

## Results



## The Effect of Enzyme Preparations on the Yield of Carotenoids from Plant Materials

Angelina Baskovtseva, Ulbosyn Kyzdarbek, Nadezhda Barakova V.  
ITMO University, Faculty of Biotechnology

**Keywords:**

Carotenoids, plant materials,  
enzyme preparations

## Conclusion

- Both enzyme preparations increase the yield of  $\beta$ -carotene, but Fructozyme MA showed a higher result.
- The highest result was shown by the dose of the enzyme preparation Fructozyme MA in the amount of 0,05%. At this dosage, the yield of  $\beta$ -carotene went up by 58% compared to the control sample.

## References

1. Adadi P., Barakova N.V., Krivoshapkina E.F. Selected Methods of Extracting Carotenoids, Characterization, and Health Concerns: A Review. *Journal of Agricultural and Food Chemistry*, 2018, № 66, pp. 5925–5947.
2. Galanakis C.M. *Carotenoids: Properties, Processing, and Applications*. Academic Press, 2020. – 385 pp., 3.
3. Базарнова Ю.Г. Методы исследования сырья и готовой продукции: Учеб.-метод. пособие. – СПб.: НИУ ИТМО; ИХиБТ, 2013 – 76 с., 42, 45–46.

## The Effect of Enzyme Preparations on the Yield of Carotenoids from Plant Materials

Angelina Baskovtseva, Ulbosyn Kyzdarbek, Nadezhda Barakova V.  
ITMO University, Faculty of Biotechnology

**Keywords:**

Carotenoids, plant materials,  
enzyme preparations

# Thank you for your attention!

Angelina Baskovtseva, Ulbosyn Kyzdarbek, Nadezhda  
Barakova V.  
ITMO University, Faculty of Biotechnology

Contact details: [baskovtseva.ang@yandex.com](mailto:baskovtseva.ang@yandex.com)  
[kyzdarbekova.ulbosyn@mail.ru](mailto:kyzdarbekova.ulbosyn@mail.ru)  
[n.barakova@mail.ru](mailto:n.barakova@mail.ru)