

# Folate content in fresh-cut and packed vegetables

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**Ready-to-eat products**, including fresh-cut and packed vegetables, contribute nowadays significantly to the daily diet. Lack of heating processing in these products production make them a good source of bioactive compounds, such as folate, which are sensitive to the high temperature. Folate is a water-soluble vitamin of great nutritional importance. Low levels of plasma folate are associated, for instance, with neural tube defects, macrocytic anemia, cardiovascular diseases and even some forms of cancer. One of rich natural sources of folate are, inter alia, green leafy vegetables.

## Conclusions

Ready-to-eat packed vegetables become a significant portion of diet, thus, their nutritional composition, including folate content, should be well known. Our results support well the general need to provide consumers with the information of the potential folate rich ready-to-eat products. It was shown that these products have higher folate content when compared with heat processed vegetables. However, the quality of raw material, time and storage conditions seem to have the greatest impact on the folate vitamins content.



## Objectives

Determination of folate content in fresh-cut vegetables packed products available on the market.





## Materials and Methods

The research material consisted of fresh-cut and packed spinach, kale, arugula and lamb's lettuce obtained from three market chains popular in Poland. The folate content was determined with the HPLC method using spectrophotometric and fluorescence detection.

## Results

In all vegetable samples two folate forms, tetrahydrofolate ( $H_4PteGlu$ ) and the predominant one - 5-methyltetrahydrofolate ( $5-CH_3-H_4PteGlu$ ), were identified (fig.1). Depending on the place of purchase, the total folate content varied in all vegetable samples (tab.1).

**Table 1. Total folate content in vegetable samples expressed as  $\mu g$  of folic acid in 100 g of the fresh product**

Vegetable sample	Total folate [ $\mu g/100 g$ ]
Spinach 	40.7 - 87.9
Kale 	36.0 - 115.7
Arugula 	23.2 - 47.4
Lamb's lettuce 	28.3 - 43.7

**Fig.1  $H_4PteGlu$  and  $5-CH_3-H_4PteGlu$  content [ $\mu g/100 g$ ] in vegetable samples**

