



# Influence of the seed sowing time on the quality of coriander (*Coriandrum sativum* L.) leaves

## INTRODUCTION

Coriander (*Coriandrum sativum* L.) is a medicinal and spice plant grown primarily for its aromatic fruit. In the Mediterranean, Indian and Mexican area, fresh and dried leaves of this species, known as cilantro, are also used. In Poland, until recently, this spice has been used only occasionally. Nowadays an increased interest in the culinary usage of this plant material and in its harvesting from the plantations is observed.

## AIM OF THE STUDY

The aim of this study was to evaluate the effect of the time of seed sowing on the quality of coriander leaves, and to determine how the quality of this raw material is affected by the drying method.

## RESULTS

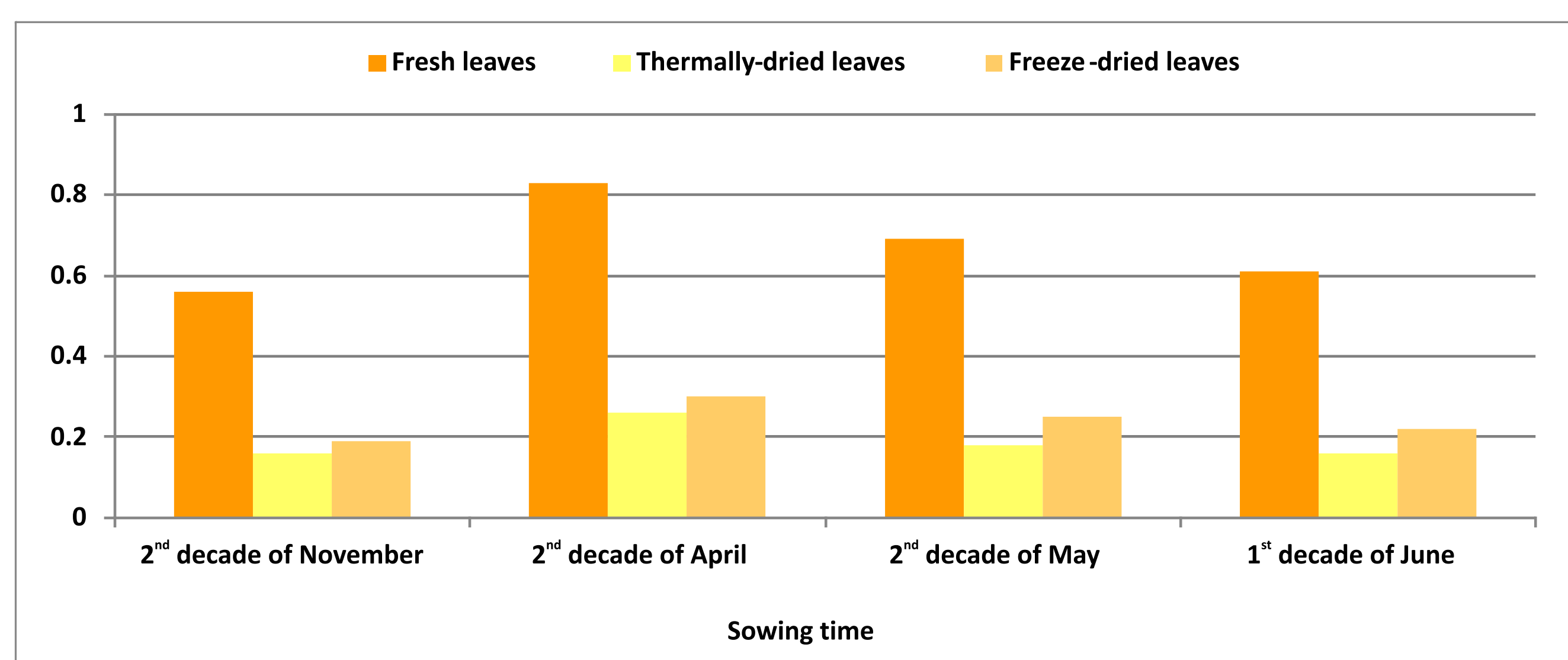


Figure 1. Content of essential oil in coriander leaves (ml 100g<sup>-1</sup> DW)

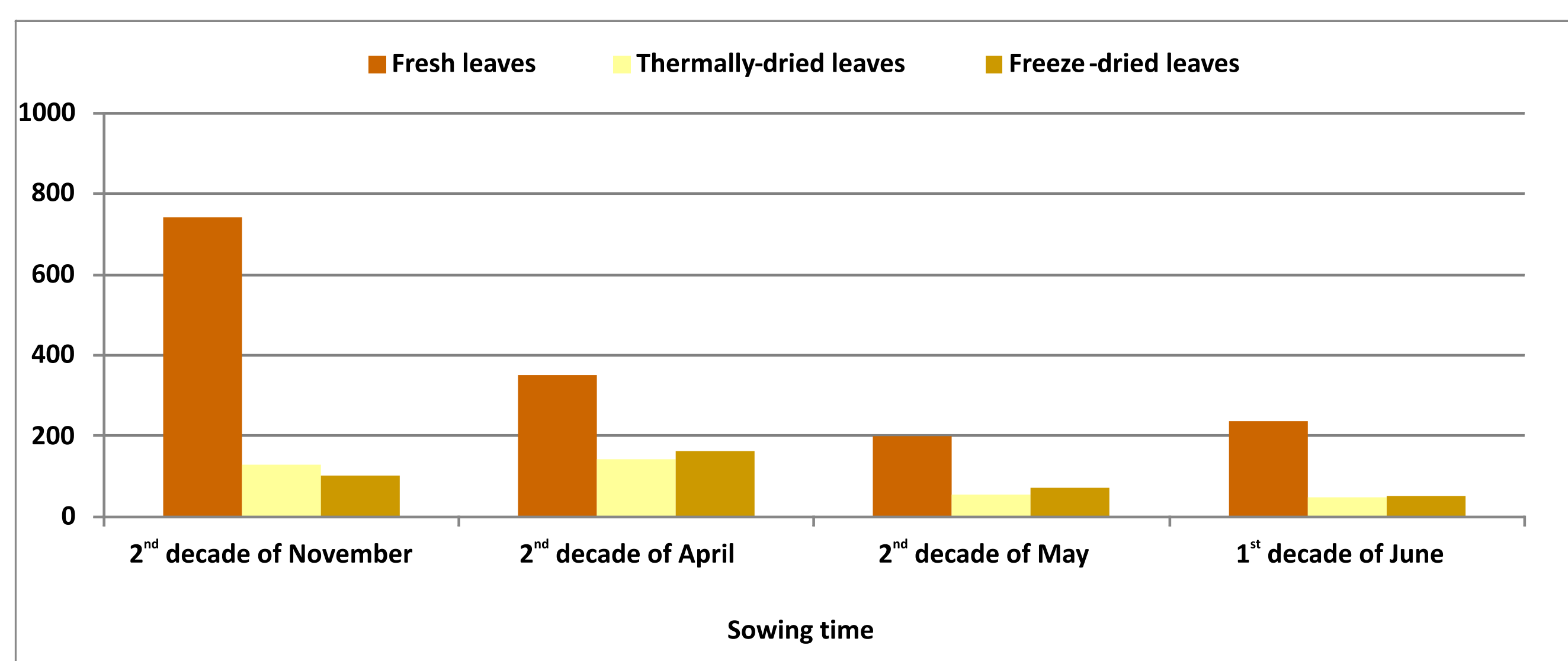


Figure 3. Content of flavonoids in coriander leaves (mg 100g<sup>-1</sup> DW)

## MATERIAL AND METHODS

The experiment was carried out in the experimental field in Warsaw in 2010-2011. Coriander seeds were sown into the ground on four dates: in the second decade of November, in the second decade of April, in the second decade of May, and in the first decade of June. Single plot area was 5 m<sup>2</sup> and row spacing 20 cm. Leaves were collected when the plants reached 20-30 cm in height. After harvest the raw materials were divided into three parts. The first part was subjected to chemical analysis directly after collecting (fresh raw material). The second part was dried in a drying chamber at 40°C. The third part was freeze-dried at -49°C under the pressure of 0.0043 hPa.

In the investigated samples the content of essential oil, polyphenolic acids, and flavonoids, as well as antioxidant activity were determined.

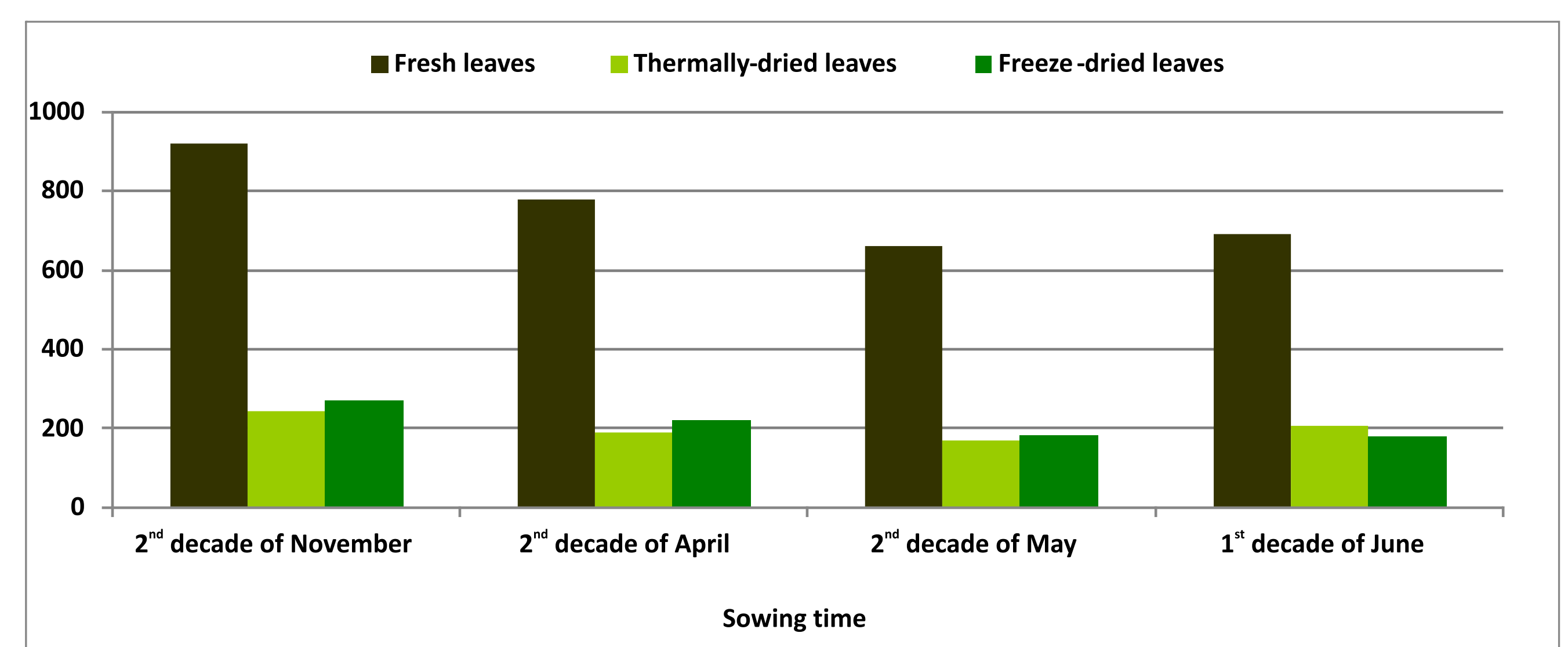


Figure 2. Content of polyphenolic acids in coriander leaves (mg 100g<sup>-1</sup> DW)

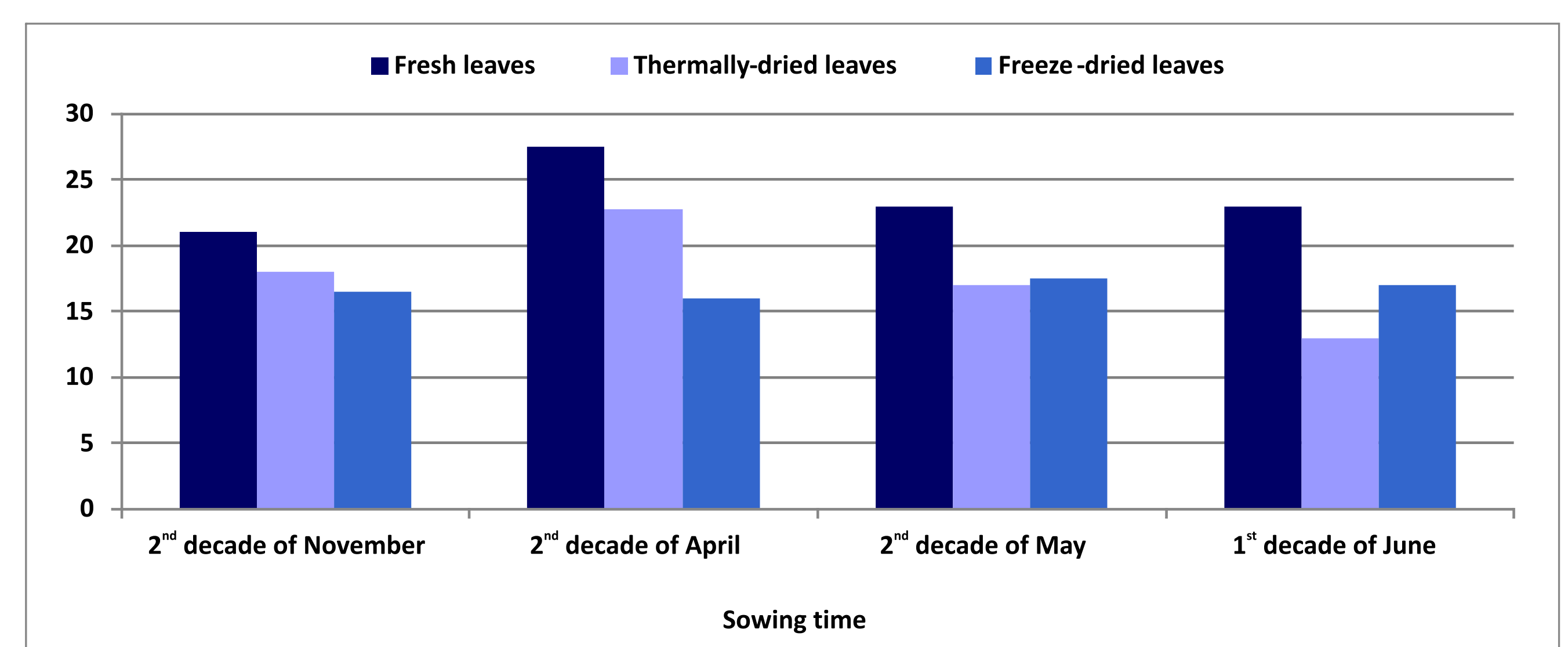


Figure 4. Antioxidant activity of coriander leaves (DPPH inhibition, %)

## CONCLUSIONS

1. The content of essential oil, flavonoids, and polyphenolic acids in coriander leaves depended on the time of plantation establishment, form of raw material (fresh vs. dried), and method of its conservation (thermal drying vs. freeze-drying).

- The highest content of essential oil was characteristic for the leaves collected from the plantation established in the second decade of April, whereas the highest content of flavonoids and polyphenolic acids was found in the leaves from the plantation established in the second decade of November.
- Fresh leaves were characterised by the higher content of all determined constituents and higher antioxidant activity in comparison with thermally-dried and freeze-dried leaves.
- Freeze-dried raw material retained higher amount of essential oil than thermally-dried one.

