Analyses of element contents and microbiological parameters of wheat- and pea-sprouts treated by molybdenum and selenium

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Consumption of various types of sprouts is increasing in a lot of countries. Although sprout consumption in Hungary is not as widespread as it is in the Far-East, due to its outstandingly high nutritional value, it would be recommendable to consume various sprouts.

In our experiments the seed of a monocotyledon (Triticum aestivum) and a dicotyledon (Pisum sativum) was chosen as the two types of plants highly differ in nutrient intake.

The experiments can be divided into two major groups:
1. Treatment of sprouts with molybdenum or selenium
2. Microbiological analysis of sprouts
1. During the treatment of sprouts with molybdenum and selenium (selenite, selenate), the water used for the germination and soaking of the seeds have been supplied with increasing molybdenum, selenite and selenate concentrations.
Element content of sprouts was analysed continuously during germination to examine changing of the concentrations. The element contents were analysed with an inductively coupled plasma optical emission spectrometer (ICP-OES) and an inductively coupled plasma mass spectrometer (ICP-MS).
2. During the microbiological analysis of the sprouts plate count, total coliform content, total yeast and mould content were determined before soaking of the seeds, after 12 hours of soaking, and on each day of germination.

As a result we can draw the conclusion that it is advisable to treat sprouts with molybdenum and selenium, since sprouts are able to intake these elements in high concentration and thus they can contribute to cover our daily molybdenum and selenium needs to a great extent. On the other hand, it has become apparent that microbiological load of the seeds is already high and it increases during germination. Therefore, decreasing microbiological infection of seeds is extremely important and initial microbiological load should also be controlled.

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