

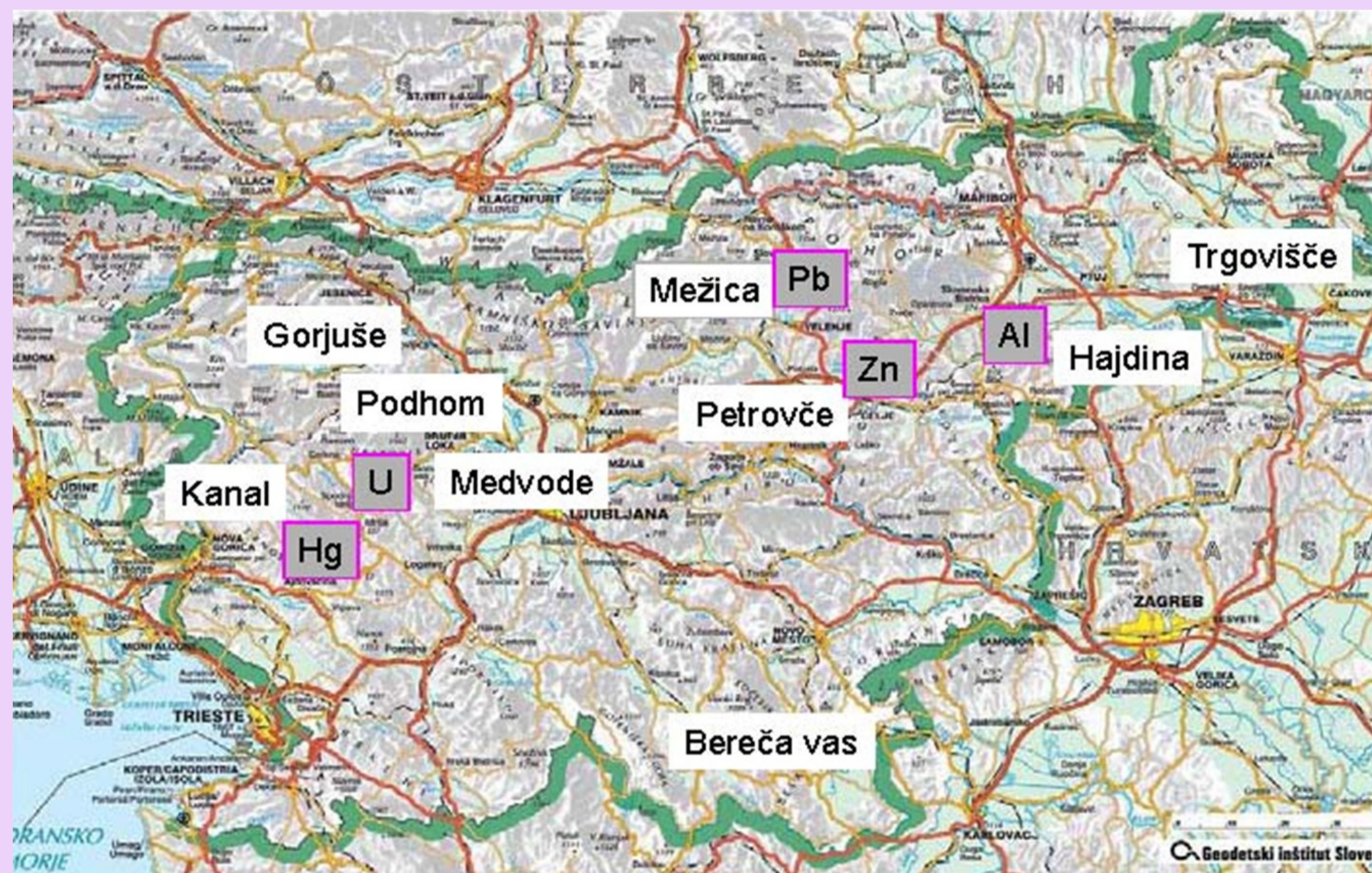


Chemistry in the International Comenius II Project: Super Supper

About the Project

- The Project lasted two school years, 2009/2010 and 2010/2011
- The title of the project is Super Supper
- In the project are involved students and teachers from schools in:
 - Barcs, Hungary
 - Geel, Belgium
 - Marsala, Italy-Sicily
 - Pamplona, Spain
 - Ljubljana, Slovenia

Extraction of metals and outlet samples of potatoes



The project goals:

- examination of eating habits and exercising of students and analysis of the results
- choice and preparation of the national dish
- investigation into the chemical composition of food
- calculation of the calorific value of food
- discussion about OMG produced vegetables and fruit
- promotion of healthy life style among teenagers

Origins and places of metals in Slovenia

Fe	Hg	Pb	Zn	Al	²³⁵ U
15 th cent.	15 th cent.	17 th cent.	1970	1942	od 1982 do 1990
	Idrija	Mežica	Celje	Ptuj	Žirovski vrh

Maximum levels of metals in soil, water and food

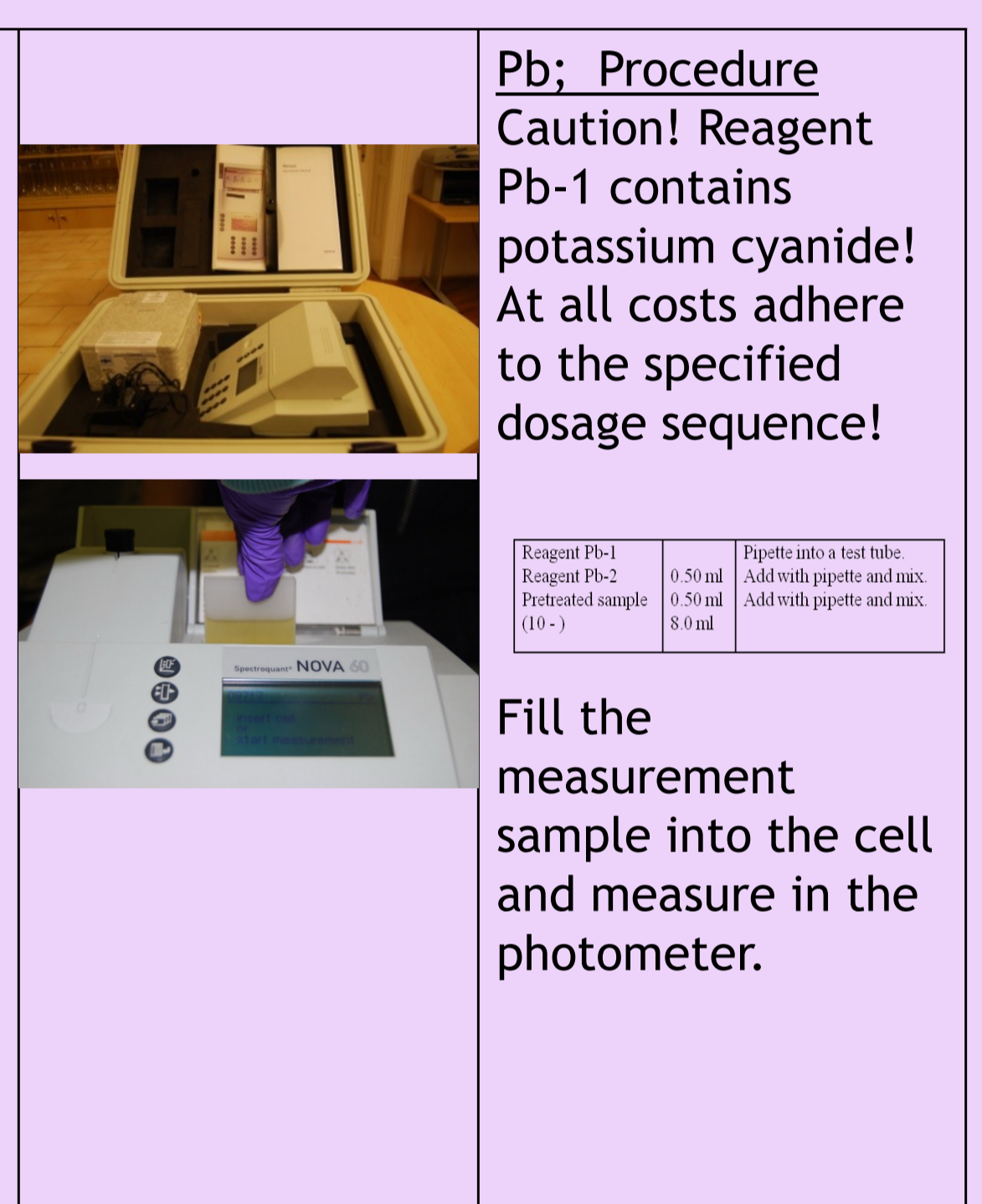
METAL	LIMITS IN UNCONTAMINATED SOIL mg/kg	AVERAGE LIMITS IN SURFACE WATERS mg/L	LIMITS IN FOOD UNDER REGULATION (EC) NO. 1881/2006 mg/kg
Zn	80	0,100	no limits
Pb	13	0,010	0,10
Cd	< 1	0,001	0,10

Pre-treatment of potatoes with a wet-oxidative acid mineralization



SAMPLE PREPARATION FOR MEASUREMENT BY PHOTOMETER

POSTOPEK za analizo Pb:
 1. Epruveti s pokrovom na navoj odstrani pokrov in s pipeto v njo nalij 0,5 ml reagenta Pb-1. (ravnaj previdno zaradi prisotnosti kalijevega cianida).
 2. Nato v isto epruveto dodaj s pipeto 0,5 ml reagenta Pb-2, zapri epruveto in dobro premešaj.
 3. Zmesi reagentov dodaj s pipeto 8 ml vzorca, zapri epruveto in dobro premešaj. (temperatura analiziranega vzorca sme biti od 10 do 40 °C).
 4. Nato s kapalko odvzemi raztopino iz epruvete in napolni štirioglatno kiveto.
 5. Izmeri vsebnost Pb s fotometrom.



Sample preparation by microwave digestion of the Institute of Public Health in Ljubljana



Apparatus for very accurate determination of elements at the Institute of Public Health



PROJECT COMENIUS

PAMPLONA, SPAIN - LJUBLJANA, SLOVENIA

February 9 2010

DETECTING HEAVY METALS IN FOOD (POTATO) DOLOČANJE TEŽKIH KOVIN V HRANI (KROMPIR)

Matej Franko, Urška Klobučar, Asja Kunaver, Anže Obolnar, Anja Skrbinek,

3. E

Metka Lampret, Teacher of Chemistry



Spanish students and students of the class 3.e. in chemical workshop

PLACE	ZINC Zn mg/kg		LEAD Pb mg/kg		CADMIUM Cd mg/kg	
Medvode (Ljubljana)	2,08	2,16	< 0,04	< 0,04	0,04	0,04
Kanal (Nova Gorica)	2,23	2,20	< 0,04	< 0,04	0,02	0,02
Gorjuše	2,42	2,42	< 0,04	< 0,04	0,05	0,04
Podhom	2,62	2,50	< 0,04	< 0,04	0,02	0,02
Petrovče (Celje)	3,36	3,27	< 0,04	< 0,04	0,07	0,07
Mežica	3,55	3,37	< 0,04	< 0,04	0,04	0,04
Hajdina (Ptuj)	2,96	2,84	< 0,04	0,04	0,04	0,04
Trgovišče (Ormož)	4,26	4,33	< 0,04	< 0,04	0,03	0,03
Bereča vas	2,52	2,51	< 0,04	< 0,04	0,05	0,06
Pamplona (Španija)	2,62	2,70	< 0,04	< 0,04	0,02	0,02

The results of the content of zinc, lead and cadmium in potatoes

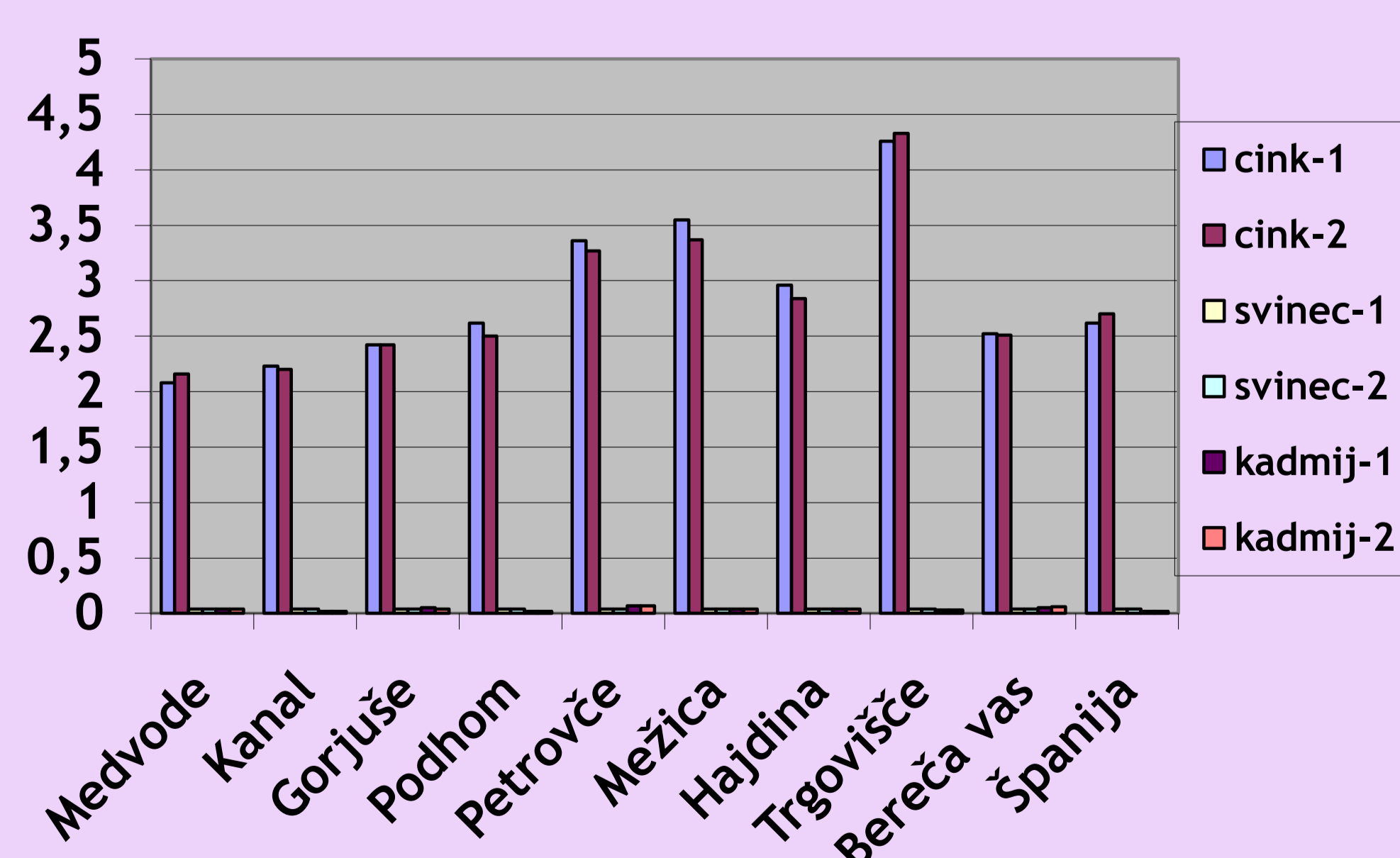


Chart of zinc content of the potatoes in mg/kg



FIRST INTERNATIONAL SCIENTIFIC CONFERENCE / CONFERENCE: NUTRITION, EVOLUTION AND HEALTH



Chemistry in the International Comenius II Project: Super Supper

Metka Lampret
Gimnazija Poljane, Ljubljana, Slovenia



Rakičan,
October 17- 19 2010