



**Subsequent determination of
 ^{90}Sr and ^{210}Pb in goat bones samples
from Island of Mljet, Croatia**

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Motivation

- The island of Mljet, Croatia



Introduction

- A new method for ^{90}Sr and ^{210}Pb determination
- Goat bone samples



A new method for ^{90}Sr and ^{210}Pb determination

- Chemical isolation:
AnaLig Sr-01 and
Sr Resin
- Detection: Liquid
Scintillation Counter
(LSC)

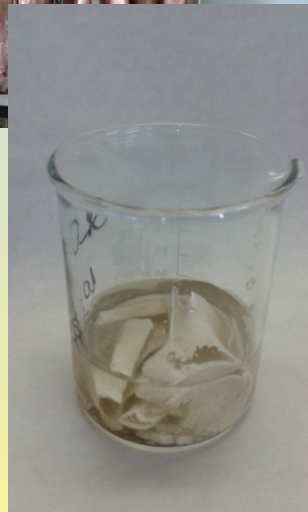


^{90}Sr i ^{210}Pb in bone samples - methodology

- 1. Sample preparation



- Ashing
- HNO_3



^{90}Sr i ^{210}Pb in bone samples - methodology

- 2. Separation:
- Sr resin
- 8 M HNO_3
- Sr – H_2O
- Pb – 9 M HCl



- 3. Detection:
- ^{90}Sr – Cherenkov counting
- ^{210}Pb – classical LSC



^{90}Sr i ^{210}Pb in bone samples

- Sr resin
- ^{90}Sr : MDA (2.6 Bq kg^{-1}) – 40.5 Bq kg^{-1}
- ^{210}Pb (MDA 1.9 Bq kg^{-1}): 8.4 – 93.1 Bq kg^{-1}

^{90}Sr i ^{210}Pb in bone samples

Goat code	Age (estimated)	A (^{90}Sr) \pm U, Bq kg $^{-1}$	A (^{210}Pb) \pm U, Bq kg $^{-1}$
1	3 y	20.3 \pm 2.1	93.1 \pm 8.4
2	4 m	< 2.6	25.0 \pm 2.3
3	5 – 6 m	10.2 \pm 0.82	58.7 \pm 5.3
4	1.5 y	22.8 \pm 1.8	34.2 \pm 3.1
5	3 y	10.2 \pm 0.82	26.2 \pm 2.1
6	2 y	14.1 \pm 1.1	90.8 \pm 9.0
7	1 y	20.1 \pm 1.5	53.3 \pm 4.8
8	1 y	28.9 \pm 2.3	73.3 \pm 6.6
9	2 y	18.5 \pm 1.5	8.4 \pm 0.76
10	1 y	40.5 \pm 3.2	56.8 \pm 6.0
11	3 m	11.6 \pm 0.93	30.7 \pm 4.1

The island of Mljet – Massic activities of radionuclides in the *terra rossa* soil samples

Soil code	A (^{90}Sr) Bq kg $^{-1}$	A (^{226}Ra) Bq kg $^{-1}$
1	66.0 \pm 5.9	254 \pm 13
2	92.8 \pm 8.3	187 \pm 9
3	133.6 \pm 11.9	332 \pm 13
3A	209.9 \pm 18.7	330 \pm 13
4	330.1 \pm 29.4	432 \pm 14
4A	174.6 \pm 15.5	487 \pm 15
5	198.7 \pm 17.7	175 \pm 9
6	204.0 \pm 18.2	116 \pm 10
7	125.5 \pm 11.2	345 \pm 12
8	186.2 \pm 16.6	422 \pm 13
9	136.6 \pm 12.2	247 \pm 11
10	131.3 \pm 11.7	203 \pm 10
11	166.4 \pm 14.8	221 \pm 13

Conclusion

- A verified new method
- Sr resin
- Cherenkov, classical LSC counting
- Need for additional research

