

INTRODUCTION

The number of deaths due to malignant neoplasms is increasing year by year. For this reason, new ways of preventing them and supporting treatment are being sought. One of them is adding plant extracts to food in case to increase its antioxidant, anti-inflammatory and anti-cancerogenic activity.

AIM OF THE STUDY

The aim of the study was to examine the effect of different wild-grown fruits (elderberry, chokeberry, sea-buckthorn, and hawthorn) added to wheat-flour biscuits on the proliferation of:

- 1) normal BJ lines (fibroblasts);
- 2) tumour cells of the MCF-7 (breast cancer)
- 3) WM793 (melanoma) lines.

MATERIAL AND METHODS

Wheat-flour biscuits fortified with wild-grown fruits were baked. Then methanol-acetone extracts were made in order to prepare mixtures with concentrations of: 0.5 mg/mL, 1 mg/mL, 1.5 mg/mL, and 2.5 mg/mL. The viability of normal and neoplastic cells was examined.

RESULTS

Table 1. Viability of BJ, MCF-7 and WM793 lines after 24 hours of incubation with the addition of biscuit extracts of various wild-grown fruits.

WILD-GROWN FRUIT	Extract concentration [mg/mL]	BJ [%]	MCF-7 [%]	WM793 [%]
		mean value ± sd*		
ELDERBERRY	0,5	92,44 ^{d**} ±3,73	41,55 ^b ±6,11	23,68 ^a ±5,8
	1,0	94,45 ^d ±3,97	38,04 ^b ±3,36	23,36 ^a ±8,69
	1,5	71,32 ^c ±10,84	40,02 ^b ±3,65	21,8 ^a ±3,58
	2,5	65,97 ^c ±4,21	38,13 ^b ±3,28	21,92 ^a ±5,71
CHOKEBERRY	0,5	95,04 ^a ±3,73	39,74 ^b ±1,67	100,00 ^a ±28,00
	1,0	91,78 ^a ±6,67	39,34 ^b ±3,76	85,54 ^a ±0,24
	1,5	95,34 ^a ±2,3	35,76 ^b ±5,46	86,6 ^a ±11,85
	2,5	84,27 ^a ±8,77	37,6 ^b ±6,29	89,37 ^a ±2,49
SEA-BUCKTHORN	0,5	98,9 ^{ac} ±0,16	83,13 ^{abd} ±11,25	75,72 ^{bd} ±2,34
	1,0	100,00 ^c ±6,67	84,79 ^{abcd} ±8,04	92,84 ^{abc} ±4,15
	1,5	98,07 ^{ac} ±9,68	81,58 ^{abd} ±8,49	70,00 ^d ±6,26
	2,5	88,67 ^{abc} ±10,17	85,78 ^{abcd} ±4,43	45,93 ^e ±20,64
HAWTHORN	0,5	91,94 ^{ad} ±4,66	61,95 ^b ±10,43	100,00 ^{ad} ±5,01
	1,0	88,01 ^{ac} ±9,7	59,26 ^b ±9,59	100,00 ^{ad} ±6,97
	1,5	88,94 ^{ac} ±3,35	62,88 ^b ±10,93	88,9 ^{ac} ±10,9
	2,5	72,79 ^{bc} ±13,87	63,09 ^b ±9,97	100,00 ^{ad} ±3,8

*sd – standard deviation; ** the values with different letters are significantly different at p<0.05

CONCLUSIONS

1. The use of biscuit extracts with the addition of elderberry had the greatest impact on reducing the viability of WM793 skin cancer cells compared to normal BJ line cells.
2. The use of chokeberry biscuit extracts reduced the viability of MCF-7 breast cancer cells compared to normal BJ line cells and WM793 skin cancer cells.
3. The use of biscuit extracts with the addition of sea-buckthorn at concentrations of 0.5, 1.5, and 2.5 mg/ml resulted in a reduction in the viability of WM793 cancer cells compared to the viability of normal BJ cells.
4. The use of biscuit extracts with the addition of hawthorn at concentrations of 0.5, 1.0, and 1.5 mg/ml resulted in a reduction in the viability of MCF-7 breast cancer cells compared to the viability of normal BJ cells. In turn, the 2.5 mg/ml extract reduced the viability of WM793 skin cancer cells.