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Potential effects of refined deep-sea water (RDSW) on tumor growth

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Aur aim is to evaluate whether high-mineral RDSW influences the biological behaviors of tumor cells *in vitro* and *vivo*.

Materials and Methods: RDSW produced from deep-seawater off Muroto in Kochi Prefecture. The deep-seawater was desalinated and conditioned to give 5 magnesium:calcium ratios of 1:2 (A), 1:1 (B), 3:1 (C), 1:0 (D) and 0:1 (E) at hardness of 1000, expressed by 5 types of high-mineral RDSW. The RDSW and distilled waters were used in this study as test and control waters.MKN-45 was cultured in RPMI1640 medium prepared by each RDSW and control waters for 72 hours. The cell viability was examined by MTT assay and was compared among the 6 mediums. The animals (15 male nude mice in each 6 group) were allowed free access to test or control waters during *in vivo* experiment. After two weeks, MKN-45 was injected in the subcutaneous part of posterior cervical region. Two weeks later, the animals were sacrificed and tumors and sera were obtained. The tumor size was measured. All tumors were subjected to western blotting with sera from all animals to evaluate the immuno-reactivity whose antibody profile was compared among 6 groups.

Results: Cell viability *in vitro* was 62-79% in 5 RDSW compared to control with statistical significance. Tumor volume was 54-80% in 5 RDSW compared to control with a significant difference. Therefore, high-mineral RDSW potentially possesses a repressive effect on tumor growth. Furthermore, 44 molecules were gained as candidate determinants involved in this phenomenon.

Biography

Yoshihiro Hataguchi graduated from Himeji Institute of Technology University (1995) and belongs to Technical development division of Ako kasei Co., Ltd. One of the company's management policies is to devote to healthy human life by producing a variety of high quality and effective foods and liquids with original technology. Yoshihiro Hataguchi, a section chief, is working to research and develop new goods based on deep-seawater which possess functional effect in vivo.

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Development and organoleptic evaluation of broken sorghum flakes and pulse based healthy mixes

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A nutritious healthy mix was developed using natural ingredients; namely, staple cereals and pulses, milk substitutes, almonds and cardamom. Three mixes were prepared using various combinations of broken sorghum flake powder, black gram, puffed Bengal gram, green gram based healthy mixes were developed and analyzed for nutrient composition and selected sensory quality parameters. All the three formulations are higher overall acceptability than control sample. Over all acceptability of the black gram based healthy mix sensory value are lesser than the both green gram and puffed Bengal gram based mixes. The blends had higher protein and mineral content in the healthy mixes (referred through calculated nutritional value of NIN), however, based on sensory data, the blends were well accepted. This indicates that though the addition of pulses and oil seeds could enhance the nutritional status of the product as well as sensory attributes. The nutritive value and cost of the developed healthy mix was found to be better than a commercial mix. All the mixes were inexpensive and nutritious, and remained acceptable even after being stored for one month.

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