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SUPPLEMENT

carried out at high doses and on the developing brain. The present study was designed to investigate the *in vivo* effects of MSG on the addicted behaviour and brain leptin levels in rats. In this study, 8-week-old male rats ($n = 10$) were given MSG (with gastric gavage) only one day in a week for 12 weeks. The control group rats ($n = 10$) were given saline at the same time and period. After the exposure period, the animals were subjected to behavioural tests in conditioned place preference (CPP) test and brain leptin levels were analysed. There was no significant difference between MSG and control groups in the time spent in the target segment ($P > 0.05$). There was no significant difference in the brain leptin levels of MSG and control groups rats ($P > 0.05$). These findings indicate that MSG has no addictive effect at this dose in rats. However, MSG administration at higher doses (two to three times a week) can be tried in another group of animals. Further research is needed on the relationship between MSG and its addictive effect.

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Key words: monosodium glutamate, addictive behaviour, leptine levels, condition place preference

190. AlgaeCeuticals: development of microalgae-based natural UV sunscreens and proteins as cosmeceuticals and nutraceuticals

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Microalgae biomass represents a rich source for discovery. The potential for algae-based ingredients in the industry relies on the manipulation and targeting of ingredients to fit increasingly niche product specifications. Algae are exposed to extreme environment and so have developed unique mechanism for protection. Furthermore, algae produce for the same reason different metabolites which we need to identify and exploit in

a sustainable way for the production of food, drugs and cosmetics. The AlgaeCeuticals project will take advantage of the native algae strains producing high added value products and through the application of novel 'omics technologies (genomics, transcriptomics, proteomics, enzymomics and metabolomics) as well as algae culture technologies and production of novel products. AlgaeCeuticals will screen and characterise algae biodiversity, develop and optimise algae culture systems, develop 'omics resources for algae and also develop downstream processing strategies and also develop novel products. For this reason and to achieve its object three academic and research centres from Greece (CERTH/INAB; AUA) and Italy (FEM) will collaborate for 4 years with four industrial R&D partners from Greece (Fresh Formula), Spain (Bionos Biotech ND; Centro Tecnológico Nacional de la Conserva y Alimentación) and Austria (Ecoduna AG). Through this collaboration the academic partners will work closely with the industrial R&D and form a complementary and highly competitive team that will promote transfer of knowledge and excellence to industrial partners. This will strengthen the industrial competitiveness in the field of food and cosmetics in the process of the design, development, testing of the products proposed by the project.

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191. Use of mathematical optimisation to derive personalised dietary recommendations

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Consumption patterns in a population often vary greatly and national dietary guidelines may be perceived as unrealistic by a substantial part of the population, as they differ considerably from individual preferences. Personalised recommendations may be more relevant and have stronger motivational effects, because these can account for e.g. personal preferences, needs and beliefs. Hence, personalised recommendations may have a positive impact on public health, as higher compliance to the recommendations can be expected.

We developed a method for modelling personalised dietary recommendations. The method is applied to estimate optimised fish intake in Denmark, taking into account maximum levels of chemical contaminants and minimum levels of nutrients in different fish species.

A mathematical optimisation model that applies quadratic programming was used to model personalised fish intake recommendations that deviate as little as possible from observed individual fish intake. Model constraints ensure that modelled intake levels meet the general recommendations