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Innovative low calorie protein-rich healthy edamame snack chips with vegetables and fruits

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Edamame (vegetable soybean), rich in nutrients and other nutraceutical substances, is a good source to produce healthy snack chips rich in protein and low in carbohydrates. Innovative edamame chips were developed with desirable physical properties including colour/brownness index, water activity, moisture contents, texture and consumer sensory acceptability attributes and reported on a nine point hedonic scale for flavor, texture, mouth-feel after taste and overall acceptance and a five point just about right scale for willingness to buy from edamame flour as the main ingredient (over 80%). The processing conditions (baking powder level, baking temperature and time, and thickness) were optimized. Based on these conditions with some final adjustments snack chips were prepared from dried edamame flour in combination with 10% of dried vegetables (spinach, carrot) and or fruit (blackberry, blueberry, strawberry). The optimized conditions for edamame chips preparation were 1.0 mm thickness of the extruded edamame dough and 1.2% and 2.5% (based on the edamame flour weight) of salt and baking powder respectively, with the baking temperature and time of 171°C and 12 min respectively. The optimized chips containing edamame alone and in combination with fruits and vegetables were evaluated for the sensory study. The chips containing carrot-blueberry received the best ratings for flavor, mouth feel, crispiness, after taste and overall acceptance. These edamame chips with high proteins are (~36-39%), crunchy and tasty that demonstrated overall acceptability by consumers can serve as an alternate enjoyable snack that can substitute calorie dense snacks.

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