



The effect of taking instant vegetable cereal on blood enzymatic antioxidant in aged rats

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Introduction

- Instant vegetable cereal is a nutritious food for elderly which is rich in minerals and antioxidants. It was formulated from red amaranth, corn, barley and pineapple using drum dryer.
- This study was carried out to determine the antioxidant content in instant vegetable cereal and its efficacy in increasing antioxidant content in blood serum.

Methodology

- Antioxidant activity in instant vegetable cereal were determined using three different methods (2,2-diphenyl-1-picrylhydrazil (DPPH), ferric reducing antioxidant power (FRAP) and ferrous ion chelating (FIC)).
- The 28-day repeated dosage method following OECD407 were used in this study. Slight modification were made where rats used in the experiment was aged rats. Serum were collected at day 29 to determine glutathione reductase (GR), glutathione peroxidase (GPx) and superoxide dismutase (SOD) level. These enzymatic antioxidant were analysed using kit from Cayman, USA.

Results and Discussion

Table 1. Antioxidant assay of instant vegetable cereal

Analysis	DPPH (% absorbtion)	FRAP (mg FESO ₄ Eq/100g)	FIC (% chelating)
Instant vegetable cereal	91.69±0.54	0.67±0.02	90.24±0.52

- Antioxidant assay of the sample showed a high radical scavenging (DPPH) activity with 91.69±0.54% and ion chelating activity (FIC) up to 90.24±0.52%, while ferric reducing power was at 0.67±0.02 mg FESO₄ Eq/100g.
- Antioxidant content in blood serum, blood from twelve rats aged 10-12 month old (429.4±15.2 g) were collected and analysed for glutathione reductase (GR), glutathione peroxidase (GPx) and superoxide dismutase (SOD).
- Treated rats (n=6) were given 3.1 g/kg instant vegetable cereal by incorporating the sample in feed, while control rats were taking normal feed for 28 days. Serum antioxidant content in rats treated with instant vegetable cereal were higher as compared to the control group in GR (24.71±2.39 nmol/min/ml) and GPx (322.19 nmol/min/ml), while SOD level in treated rats were at par with control group.

Table 2. Serum antioxidant content in rats treated with instant vegetable cereal

Group (n=6)	Glutathione Reductase (nmol/min/ml)	Glutathione Peroxidase (nmol/min/ml)	Superoxide Dismutase (U/mL)
Control	20.12±6.86 ^b	260.92±16.38 ^b	6.60±0.91 ^a
Instant vegetable cereal	24.71±2.39 ^a	322.19±18.14 ^a	5.76±0.35 ^a

abc Different alphabet in the column show significant different (p>0.05)

Conclusion

- Instant vegetable cereal is a nutritious food that rich in antioxidant and provenly improved blood antioxidant level in aged rats.
- Therefore this nutritious food is suitable for aged group citizen as daily intake meal in maintaining their health status.

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