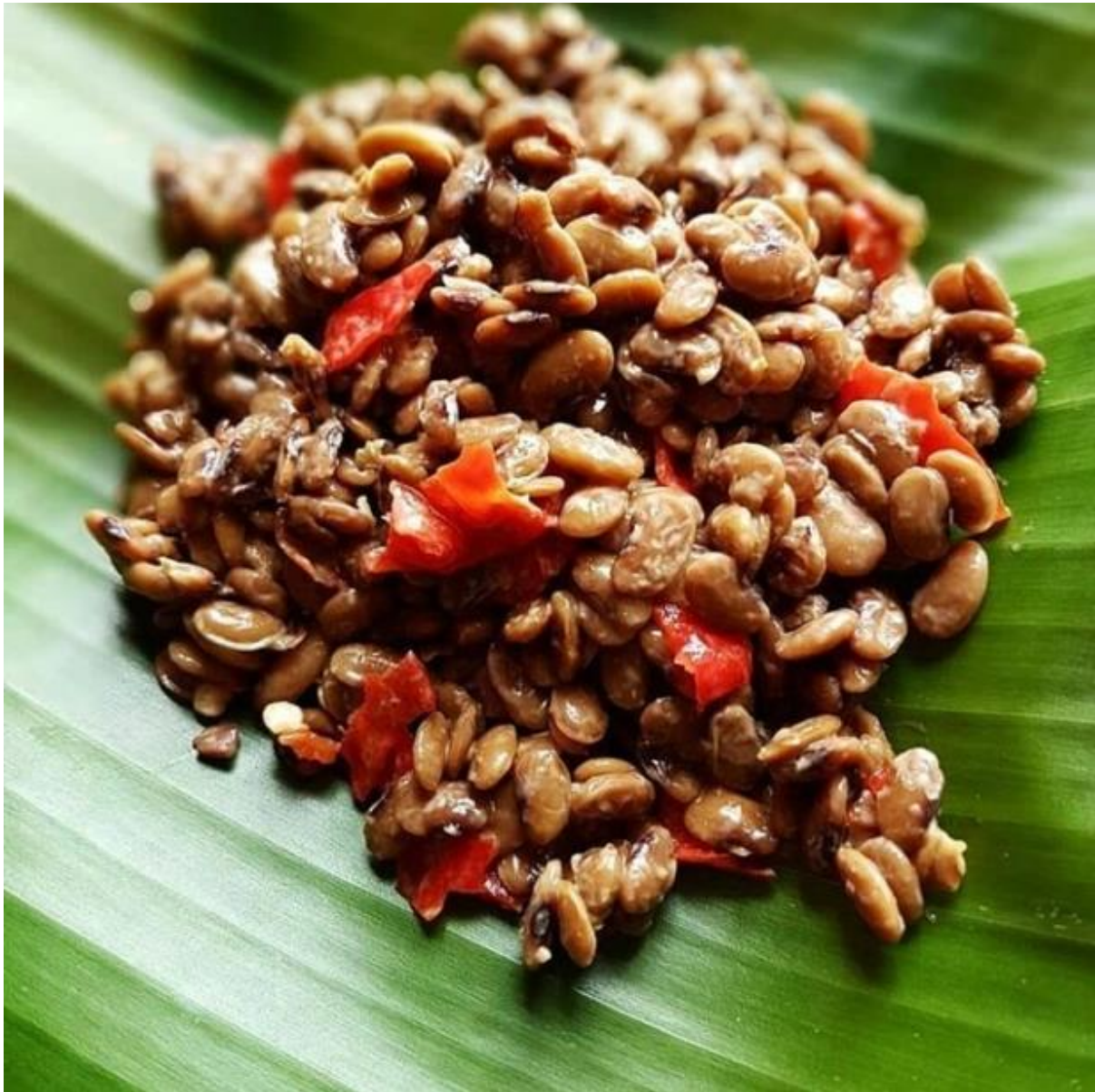


## Bioactive peptides from *kinema* can reduce oxidative stress

New Delhi, Feb 12: *Kinema* is a traditionally fermented soybean product prepared by the indigenous population of Sikkim Himalayan region, which is also popular in Darjeeling and Nepal. *Kinema* is found to be rich in nutritional values and bioactive peptides, which can have various functional properties.



A team of researchers of DBT- Institute of Bioresources and Sustainable Development (DBT-IBSD)'s Regional centre at Sikkim has formulated a fermented soybean product with antioxidant peptide that can reduce oxidative stress. It was produced using four different *Bacillus* spp., which were isolated from traditionally produced *kinema*, collected from the local market (Lal Bazaar) of Sikkim from different seasons. *Kinema* prepared with *Bacillus licheniformis*, *B. subtilis* and *B. amyloliquefaciens* as starter culture, resulted in enhancement of antioxidant activity.

In this study the antioxidant activity was found to be exerted by the peptides released by bacterial enzymatic hydrolysis of soy proteins during fermentation. The starter cultures also help in release of free polyphenols by the action of  $\beta$ -glucosidase activity during fermentation. In a detailed study, peptides from *kinema* were found rich in amino acids including histidine, phenylalanine, methionine, tryptophan and tyrosine that contribute to the antioxidant potential.

Further, it was suggested that the same peptide could inhibit myeloperoxidase (MPO), a key enzyme responsible for elevated oxidative stress. Out of 3328 peptides from the peptidome of *kinema*, the peptide sequence SEDDFVIPAAYPF, produced in *kinema* fermented using *B. licheniformis* K1G showed interactions with MPO. The result showed that application of different starter results in production of a unique set of bioactive peptides. The researchers recommended selecting specific strains for enhancement of nutraceutical properties in fermented foods. The team has published this work in the journal of "Food Research International".

**References:** S. Sanjukta, S. Padhi, Puja Sarkar, Sudhir P. Singh, D. Sahoo, Amit Kumar Rai. 2021. Production, characterization and molecular docking of antioxidant peptides from peptidome of *kinema* fermented with proteolytic *Bacillus* spp. Food Research International. DOI: <https://doi.org/10.1016/j.foodres.2021.110161>

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