

# Egg White Protein Hydrolysate Product



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Egg White Hydrolysate Powder

**Egg white protein hydrolysate** product by enzymatic process can build lean muscle containing small sizes of proteins and branched chain amino acids. It is good solubility, fast absorption, low viscosity, no egg taint and easy to take. Nutritional value per serving size of 4 g in 250g gave 10 kcal diet with 3 g protein without lipid and carbohydrate containing 60 mg Na , 6% vitamin B2, 17 amino acids with 46.01 mg magnesium and 0.05 mg calcium per 100 g. It can be applied in food, beverage, cosmetic and pharmaceutical industry.

**Egg white protein hydrolysate** product by enzymatic process can build lean muscle containing small sizes of proteins and branched chain amino acids (>30, 10-30, 3-10, 1-3 and <1 kDa in the ratio of 89.92, 3.66, 3.44, 1.59 and 1.36%).



Fresh Egg



Enzymatic Hydrolysis



Hydrolysis in Pilot Scale Bioreactor

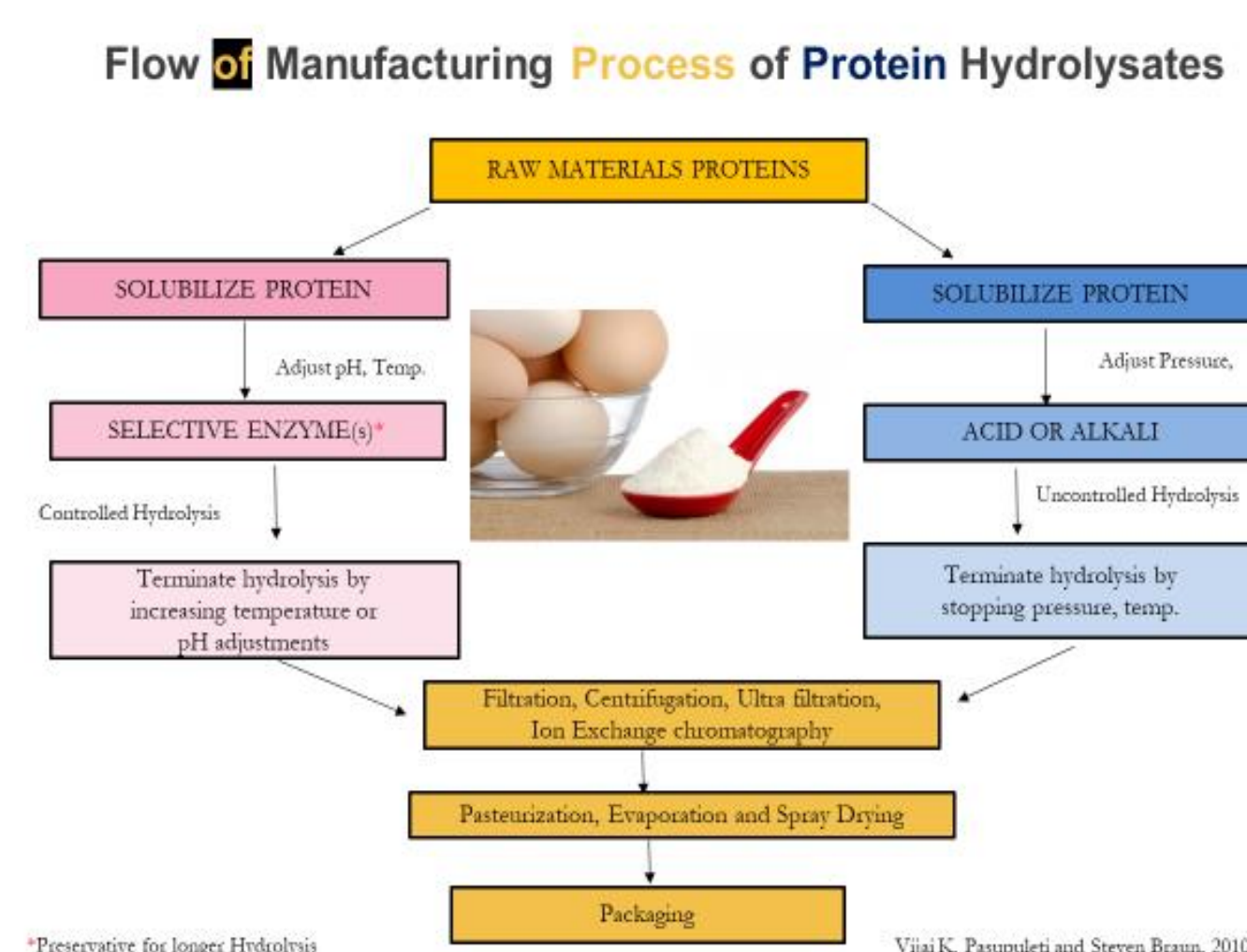


Spray Drying Process



Egg White Hydrolysate Powder and Chewing Tablet

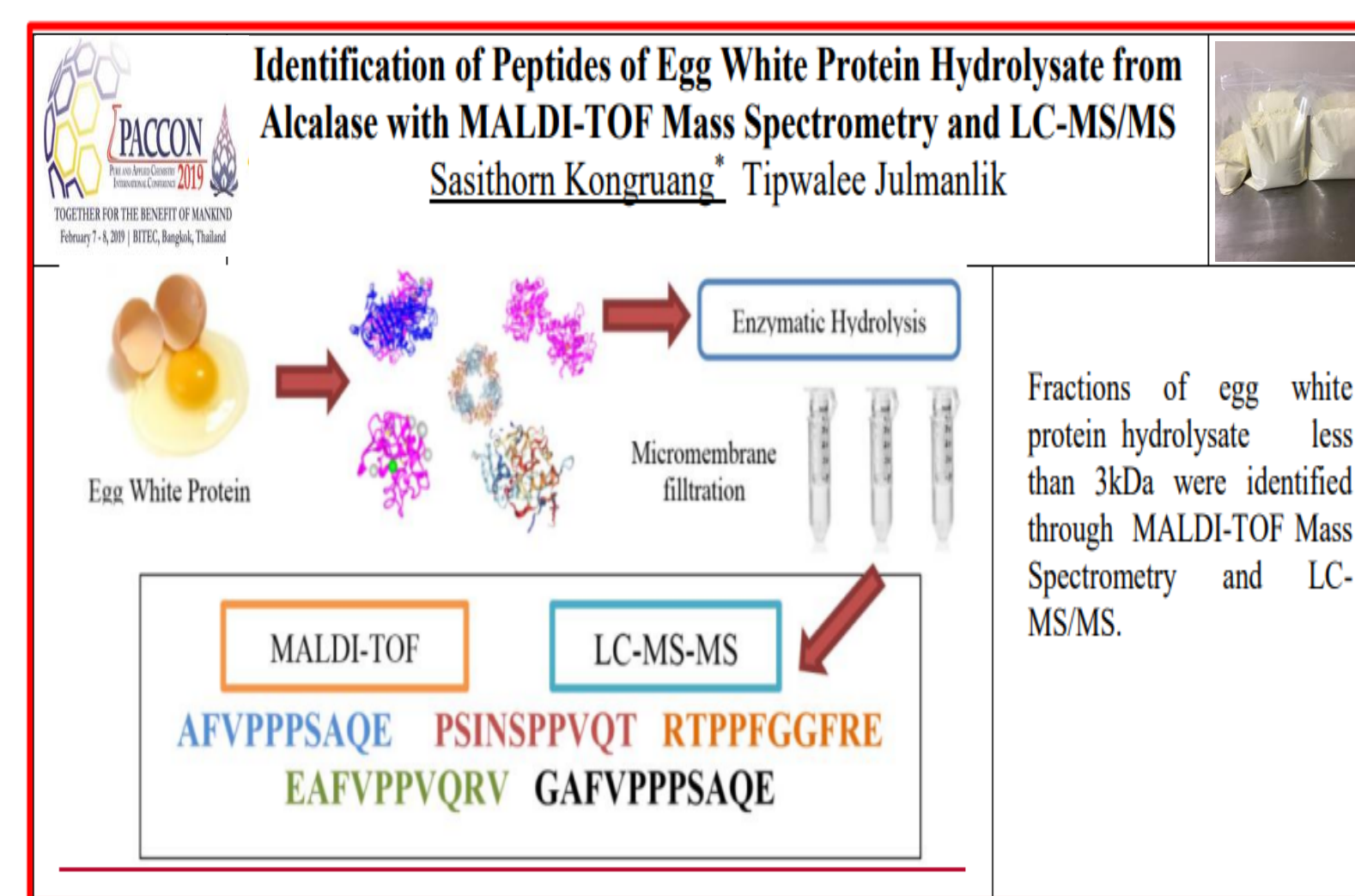
The hydrolysate protein after ultrafiltration through molecular weight cut-off membranes of 10, 5 and 3 kDa was identified by MALDI-TOF mass spectrometry and LC/MS-MS analysis. Results showed that hydrolyzed egg white protein contained 42 peptides.



Egg White Protein Production Process



Enzymatic Hydrolysis in Stirred Tank Bioreactor



Branched Chain Amino Acids Identification



Sensory Evaluation



- **Egg white proteins (EWPs)** are nutritious and easily digestible choice for the production of bioactive peptides intended for human consumption. Major proteins in egg white are 54% of ovalbumin, 12–13.6% of ovotransferrin, 11% of ovomucoid, 8% of ovoglobulins, 3.5% of ovomucin, and 3.4–3.5% of lysozyme while small contents of 1% of ovogly-coprotein, 0.8% of ovoflavoprotein, 0.5% of ovomacroglobulin, 1.5% of ovoinhibitor, 0.5% of avidin and 0.05% of
- **Egg white proteins** contains numerous bioactive peptides with specific benefits for human and animal health.
- **EWP hydrolysate** contained special branched chain amino acid, KTYQRRRE, showed 32.66% inhibition activity toward Angiotensin Converting Enzyme (ACE) which play an important role in the control of blood pressure.
- **EWP hydrolysate** can be applied in food, beverage, cosmetic and pharmaceutical industry.

**Peptide Sequences from Egg White Protein Hydrolysate**

No.	Identification sequence	Hydrophobicity (%)	No.	Identification sequence	Hydrophobicity (%)
1	AFVPPPSAQE	70	9	REAFVPPVQRVH	58.33
2	PSINSPPVQT	50	10	TVQLLDFMLDV	66.67
3	RTPPPGGFRE	40	11	WGGPLPSIPARRL	57.14
4	EAFVPPVQRV	70	12	SLPSPSQVLPRL	69.23
5	GAFVPPPSAQE	63.64	13	SLPLPSISVDYEE	46.15
6	REAFVPPVQRV	63.64	14	PLPISSEGSFTKL	50
7	GVRRLPLPLT	63.64	15	QQEVAPARGVGGMV	53.33
8	ALAARLLPLLL	91.67	16	ARPEVAPSTGGRI	53.33

**Peptide Sequences from Egg White Protein Hydrolysate**

No.	Identification sequence	Hydrophobicity (%)	No.	Identification sequence	Hydrophobicity (%)
17	RFDEEERFGLAE	38.46	25	QATNNTDGTGVGLE	17.65
18	TYLDFLEDDNG	30.77	26	LQAARPEVAPSTGGRI	52.63
19	HYDVNLFKNDMS	30.77	27	RTPPPGGFREAFVPPVQR	57.89
20	KTYVSNFVAPVDK	50	28	VLVNANLLNLIANVNTF	71.43
21	PWGGPLPSIPARRL	60	29	QLMTHSRPPLPPHLSH	66.67
22	GGDPAALALAGEPP	64.71	30	QEFSCAANFLQENAVNTRY	30.43
23	KSTDFPRDPVWGA	46.67	31	QATNNTDGTGVGLE	17.65
24	KDAFLGSLFVYSRR	33.33			

Aging Society

2015

2030

2050

% of population over 60