CLAIMS

We claim:

[Claim 1]. A structured food product, comprising a flavor enhancer comprising a heme-containing polypeptide from a microorganism, and a protein product from a microorganism, wherein the flavor enhancer and the protein product may be derived from the same or different microorganisms,

wherein the microorganism from which the flavor enhancer and/or the protein product is derived is a first microorganism grown on a nutritional source that comprises a protein product from a second microorganism.

[Claim 2]. The structured food product according to claim 1, wherein the microorganism from which the flavor enhancer and/or the protein product is derived comprises a chemoautotrophically grown microorganism.

[Claim 3]. The structured food product according to claim 2, wherein the chemoautotrophically grown microorganism comprises a *Cupriavidus* microorganism.

[Claim 4]. The structured food product according to claim 1, wherein the second microorganism comprises a *Cupriavidus* microorganism.

[Claim 5]. The structured food product according to claim 1, wherein the first microorganism is a generally recognized as safe (GRAS) microorganism.

[claim 6]. The structured food product according to claim 1, wherein the microorganism from which the flavor enhancer and/or the protein product is derived is a non-genetically modified organism (non-GMO).

[Claim 7]. The structured food product according to claim 1, wherein the food product does not contain animal-derived biomolecules.

[Claim 8]. The structured food product according to claim 1, wherein the protein product comprises one or more of single cell protein, cell lysate, protein isolate, protein extract, protein hydrolysate, free amino acids, peptides, oligopeptides, and combinations thereof.

[Claim 9]. The structured food product according to claim 1, comprising about 5% to about 50% protein by weight from the microorganism protein product.

[Claim 10]. The structured food product according to claim 1, wherein the food product is a structured meat analogue product.

[Claim 11]. The structured food product according to claim 10, wherein the structured meat analogue product is a structured beef, poultry, pork, fish, or seafood analogue product.

[Claim 12]. The structured food product according to claim 10, wherein the structured meat analogue product reproduces a texture and/or organoleptic characteristic of natural meat.

[Claim 13]. The structured food product according to claim 10, wherein the meat analogue product mimics the structure of ground or muscle meat.

[Claim 14]. The structured food product according to claim 1, wherein the structured food product is supplemented with vitamins and/or nutrients.

[Claim 15]. The structured food product according to claim 14, wherein the supplemental vitamins and/or nutrients comprise at least one of amino acids, lipids, oils, fatty acids, vitamin B12, biotin, antioxidants, minerals, surfactants, and emulsifiers.

[Claim 16]. The structured food product according to claim 14, wherein the structured food product is a structured meat analogue product.

[Claim 17]. A dough composition for production of a structured food product, comprising a flavor enhancer comprising a heme-containing polypeptide from a microorganism, and a protein product from a microorganism, wherein the flavor enhancer and the protein product may be derived from the same or different microorganisms,

wherein the protein product comprises one or more of single cell protein, cell lysate, protein isolate, protein extract, protein hydrolysate, free amino acids, peptides, oligopeptides, and combinations thereof,

wherein the protein product comprises a protein hydrolysate, and

wherein the protein hydrolysate is produced under conditions that retain undenatured globular protein.

[Claim 18]. The dough composition according to claim 17, wherein the microorganism from which the flavor enhancer and/or the protein product is derived comprises a chemoautotrophically grown microorganism.

[Claim 19]. The dough composition according to claim 18, wherein the chemoautotrophically grown microorganism comprises a *Cupriavidus* microorganism.

[Claim 20]. The dough composition according to claim 17, wherein the average molecular weight of proteins in the hydrolysate is about 5 kD to about 10 kD.

[Claim 21]. The dough composition according to claim 17, wherein the conditions that retain undenatured globular protein comprise mild cell lysis and physical separation of soluble components from cell debris,

[Claim 22]. The dough composition according to claim 17, wherein partially or fully hydrolyzed protein product is added to a second protein product to promote structuring and/or fiber formation.

[Claim 23]. The dough composition according to claim 22, wherein the second protein product comprises one or more of wheat gluten, soy, pea, wheat, milk, algae, and other non-animal proteins.

[Claim 24]. The dough composition according to claim 17, wherein the water content of the dough is about 40% (w/w) to about 80% (w/w).

[Claim 25]. The dough composition according to claim 17, wherein the shear strength of the dough is greater than about 1000 psig.