wt%, in particular the fruiting body of *Pleurotus pulmonarius* contains 4-9 wt% fiber on dry basis. CN105054261 also discloses the finding that when *Pleurotus pulmonarius* is mixed with other strains, a degradation of crude fibers takes place, especially on oyster mushrooms (Pleurotus spp.), thus reducing the fiber content by 2.3-20.25 wt%. Another study in 2020 (Int J Med Mushrooms. 2020;22(7):651-657.doi:10.1615/IntJMedMushrooms.2020035449) also reveals that mycelia of oyster mushrooms (Pleurotus spp.) contains 22 wt% of insoluble fibers. Document US 2020/270559 discloses certain methods of production of edible filamentous fungal biomat formulations and shows nutritional data from two Fusarium filamentous fungi having a total fiber content up to 25 wt% and a fat content between 7 wt% and 12 wt%.

We developed an edible non-animal dairy substitute product comprising, a fibrous mycelium ingredient having at least 39 wt% of insoluble fibers, which also acts as a protein component of the present invention offering an even higher nutritional value compared to dairy products in terms of its high prebiotic insoluble fiber content critical for gut health. Such high fibrous ingredient is not known to be contained with such properties in dairy products.

In one aspect, there is provided an edible non-animal dairy substitute product, comprising a) an edible fibrous mycelium mass in the range of 1 wt% to 99 wt%, and b) water in the range of up to 99 wt%, wherein the edible fibrous mycelium has an insoluble fiber content of at least 39% w/w.

In another aspect, there is provided an edible fibrous mycelium derived from submerged fermentation having an insoluble fiber content of at least 39% w/w.

In one embodiment of the invention, the mycelia are homogenized with water to produce an edible non-animal milk substitute product, also called a non-dairy milk replacement.

In a second embodiment of the invention, this non-dairy milk replacement is converted through fermentation into an edible non-animal yoghurt substitute product, also called a non-dairy yoghurt replacement.

In a third embodiment, the mycelia are blended with other ingredients to obtain an edible non-animal fresh cheese substitute product.

In a fourth embodiment, the mycelia are blended with other ingredients and, after coagulation, formed into a sliceable or grateable hard-cheese dairy analogue. Not only is the resulting cheese nutritionally better because of the added complete protein and prebiotic fiber, but the mycelium of the present invention also adds important micronutrients, such as vitamin B2, B3, B5 and B9 as well as key micronutrients like calcium and phosphorus in a biologically active form to the final product.

Flavour can also be significantly improved as the mycelia can bring a natural umami flavour typical to cheese without the usage of additional flavours, especially in the case when

mycelium originates from a fungus that forms fruiting bodies, e.g. from Pleurotaceae, such as fungus selected from *Pleurotus pulmonarius*, *Pleurotus ostreatus*, *Pleurotus citrinopileatus*, *Pleurotus florida,* and *Pleurotus salmoneostramineus,* and specifically if derived from *Pleurotus pulmonarius*; or from a fungus selected from *Morchella esculenta*, *Morchella angusticeps, Morchella deliciosa,* and Morchella rufobrunnea, preferably *Morchella rufobrunnea.* This is due to a significant amount of glutamate present in such species along

with other amino acids (e.g. aspartate) and/or 5'-nucleotides, which is in large part responsible for conveying the umami sensation.

The present invention is also concerned with methods of producing the above-mentioned edible non-animal dairy substitute products comprising the edible fibrous mycelium mass of the present invention. These methods will be described in detail below.

In one aspect, there is provided a method of producing an edible non-animal dairy substitute product, the method comprising a) homogenizing an edible fibrous mycelium mass with water, wherein optionally the edible fibrous mycelium mass is derived from submerged fermentation; thereby obtaining an edible non-animal milk substitute product.

The present invention is also concerned with the use of an edible fibrous mycelium mass for producing an edible non-animal dairy substitute product, wherein the edible non-animal dairy substitute product is selected from products substituting milk, yoghurt, fresh cheese, whey cheese, cream cheese, medium-hard cheese, hard-cheese, and soft-mould cheese.

DESCRIPTION OF THE INVENTION

In the following, the present invention will be described in detail.

The edible non-animal dairy substitute product of the present invention comprises an edible fibrous mycelium mass in the range of 1 wt% to 99 wt%, and water in the range of up to 99 wt%. In preferred embodiments, the edible non-animal dairy substitute product of the present invention comprises the fibrous mycelium mass in the range of 20 wt% to 95 wt%, more preferably in the range of 65 wt% to 90 wt%. In another preferred embodiment, the edible non-animal dairy substitute product of the present invention comprises the fibrous mycelium mass in the range of 1 wt% to 35 wt%. The ratio of mycelium mass to water can be chosen by the skilled person depending on the product to be substituted. The mycelium can be used directly after fermentation as a wet mycelium, it can be pressed to remove some water, it can be dried to remove water to reach a desired water content. The mycelium can also be dried and water can be added later to reach a desired water content. For example, the water content of the substitute product should be similar to the water content of the product to be substituted.

Preferably, in the edible non-animal dairy substitute product of the present invention, the edible fibrous mycelium has an insoluble fiber content of at least 39% w/w. More preferably, said edible fibrous mycelium has an insoluble fiber content of between 39% w/w and 60% w/w. Even more preferably, said edible fibrous mycelium has an insoluble fiber content of between 40% w/w and 55% w/w. Even more preferably, said edible fibrous mycelium has an insoluble fiber content of between 40% w/w and 50% w/w. Even more preferably, said edible fibrous mycelium has an insoluble fiber content of about 45% w/w. It is to be understood that

the weight as referred to herein relates to dry mass of said mycelium. In one embodiment, the edible fibrous mycelium has an insoluble fiber content of at least 40% w/w, preferably of at least 50% w/w, more preferably of at least 60% w/w.