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|-------------------------------|-------------|
| Mixing time | 2 minutes |
| Hot air temperature inlet set | 100–104° C. |
| Hot air temperature inlet | 90–100° C. |
| Temperature of the powder | 34–37° C. |

A salt solution was prepared as follows:

| Phase 2 (Salt Solution) | Amount in kg |
|-------------------------|--------------|
| Water, 65° C. | 35.318 |
| Potassium Citrate | 3.019 |
| Sodium Biphosphate | 1.872 |
| Choline Bitartrate | 0.453 |
| Total | 40.661 |

The potassium citrate was dissolved first and all salts were completely dissolved prior to dosing.

In Phase 2, the salt solution was sprayed onto the dry mixture under the following conditions:

| | |
|-------------------------------|-------------|
| Position of nozzle | Middle |
| Nozzle aperture diameter | 1.8 mm |
| Nozzle pressure | 50 psi |
| Dosing pump | 75 rpm |
| Spraying time | 13 minutes |
| Hot air temperature inlet set | 105–110° C. |
| Hot air temperature inlet | 90–105° C. |
| Temperature of the powder | 36–40° C. |

After agglomeration for a few minutes, the Phase 3 lipid-components were sprayed onto the mixture:

| Phase 3 (Oil) | Amount in kg |
|-----------------|--------------|
| Trisun Oil R 80 | 24.542 |

The oil was sprayed onto the mixture under the following conditions:

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|-------------------------------|-----------------------------------|
| Position of nozzle | Middle |
| Nozzle aperture diameter | 1.5–2.5 mm, preferably 1.8 mm |
| Nozzle pressure | 40 psi minimum, preferably 50 psi |
| Dosing pump | 75 RPM |
| Spraying time | 9 minutes |
| Hot air temperature inlet set | Approx. 100° C. |
| Hot air temperature inlet | 100–105° C. |
| Temperature of the powder | 50–60° C.; maximum 70° C. |

After additional mixing for a few minutes, a decaffeinated coffee powder was added as follows:

| Phase 4 (Dry Mix) | Amount in kg |
|-----------------------|--------------|
| Nescafe decaffeinated | 25.055 |

In Phase 4, the coffee powder was added and mixed under the following conditions:

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|---------------------------|-----------|
| Mixing time | 1 minutes |
| Temperature of the powder | 55–60° C. |

Thereafter, an aqueous carbohydrate solution was prepared as follows:

| Phase 5 (Maltrin Solution) | Amount in kg |
|----------------------------|--------------|
| Water, 65° C. | 15.093 |
| Maltrin M-180 | 3.019 |
| Total | 18.112 |

In Phase 5, the maltrin solution was sprayed onto the mixture and agglomerated under the following conditions:

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|-------------------------------|-------------|
| Position of nozzle | Middle |
| Nozzle aperture diameter | 1.8 mm |
| Nozzle pressure | 50 psi |
| Dosing pump | 75 rpm |
| Spraying time | 6–8 minutes |
| Hot air temperature inlet set | 110–150° C. |
| Hot air temperature inlet | 100–110° C. |
| Temperature of the powder | 55–58° C. |

After agglomeration was complete, the product was sieved through a sieve having a mesh size of between #12–#30, preferably #16 mesh, and collected in 25 kg storage bags. The product had a bulk density of about 250 to about 290 grams per liter. The product had a tapped density of about 360 to about 400 grams per liter.

The product was stored in a 502 mm×604 mm composite cans containing about 544 grams each.

One scoop of the product or about 60 cc=17 grams. Two scoops of the instant coffee composition are equal to one serving and each serving contains about 34 grams.

Two scoops of product were reconstituted with about 6 to 8 ounces of hot water. The instant coffee powder dissolved almost instantly to provide a clear solution looking and tasting like black coffee and which contained nutritionally therapeutic amounts of calories, protein, carbohydrate and lipid.

It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the spirit and scope of the present invention and without diminishing its attendant advantages. It is therefore intended that such changes and modifications be covered by the appended claims.

We claim:

1. A nutritional composition that when reconstituted with hot water provides a complete, nutritionally balanced, black coffee drink, the composition being in the form of an agglomerated, dissolvable powder comprising:

coffee powder;

from about 16% to about 30% of calories of a protein component exhibiting high clarity in aqueous solution for providing a black coffee drink;

from about 40% to about 75% of calories of a carbohydrate component; and

from about 15% to about 33% of calories of an atomized lipid component.