



- (51) **International Patent Classification:**
A23C 3/033 (2006.01) *A23L 3/32* (2006.01)
- (21) **International Application Number:**
PCT/EP2012/063218
- (22) **International Filing Date:**
6 July 2012 (06.07.2012)
- (25) **Filing Language:**
English
- (26) **Publication Language:**
English
- (30) **Priority Data:**
11173191.5 8 July 2011 (08.07.2011) EP
- (71) **Applicant (for all designated States except US):** NESTEC S.A. [CH/CH]; Av. Nestlé 55, CH-1800 Vevey (CH).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** MATHYS, Alexander [CH/CH]; Rue Dr. Cesar Roux 11, CH-1005 Lausanne (CH). TOEPFL, Stefan [DE/DE]; Laischaftsstrasse 18, 49080 Osnabrueck (DE). SIEMER, Claudia [DE/DE];

Märschendorfer Str. 8a, 49393 Lohne (DE). FAVRE, Laurent [CH/CH]; Chemin de la Scierie 8, CH-1077 Serpion (CH). BENYACOU, Jalil [CH/CH]; Chemin des Roches 33, CH-1066 Epalinges (CH). HANSEN, Carl, Erik [SE/CH]; Ch. du Pré-d'Yverdon 5e, CH-1066 Epalinges (CH).

(74) **Agent:** MARQUARDT, Ulf; Av. Nestlé 55, CH-1800 Vevey (CH).

(81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

[Continued on next page]

(54) **Title:** PULSED ELECTRIC FIELD TREATMENT PROCESS AND DAIRY PRODUCT COMPRISING BIOACTIVE MOLECULES OBTAINABLE BY THE PROCESS

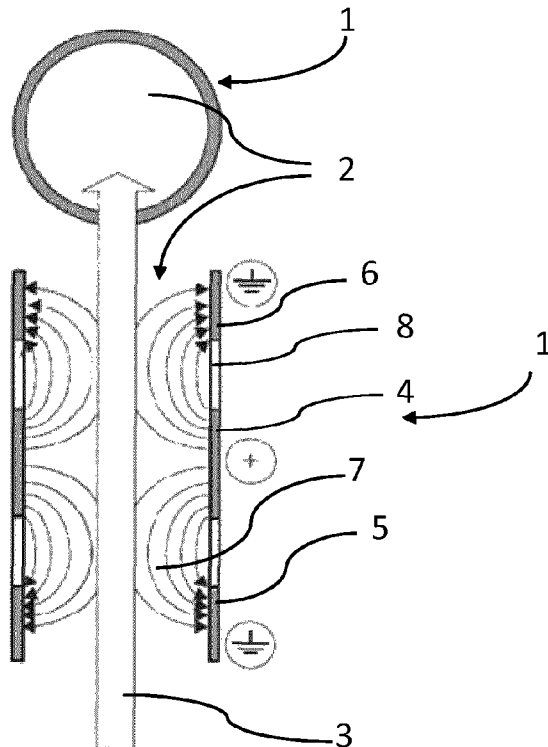


Figure 1

(57) **Abstract:** The present invention addresses the problem of inactivation of bioactive components in milk during pasteurization for preservation. The invention discloses a method of pulsed electric field (PEF) treatment of whole milk, skimmed milk, semi-skimmed milk or whey, or other liquid compositions comprising milk components or fractions. The invention is based on the finding that by selecting one or more specific process parameters, such as the PEF treatment chamber design, the specific energy applied, the field strength, pulse type, start temperature, it is possible to effectively eliminate microorganisms from the composition while conserving the activity of bioactive components in the composition.



(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*