

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
18 April 2019 (18.04.2019)



(10) International Publication Number
WO 2019/075016 A1

- (51) **International Patent Classification:**
A23L 3/3472 (2006.01) *A23L 3/3508* (2006.01)
- (21) **International Application Number:**
PCT/US2018/055153
- (22) **International Filing Date:**
10 October 2018 (10.10.2018)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
62/570,313 10 October 2017 (10.10.2017) US
- (72) **Inventor; and**
- (71) **Applicant: MAEGLI, Jack William** [US/US]; 713 South Paddock Rd., Beloit, Wisconsin 53511 (US).
- (72) **Inventors: KLATT, Jennifer Jean;** 7818 Canterbury Ridge Drive, South Beloit, Illinois 61080 (US). **COOPER, Renetta;** N7363 Lee Ann Lane, Elkhorn, Wisconsin

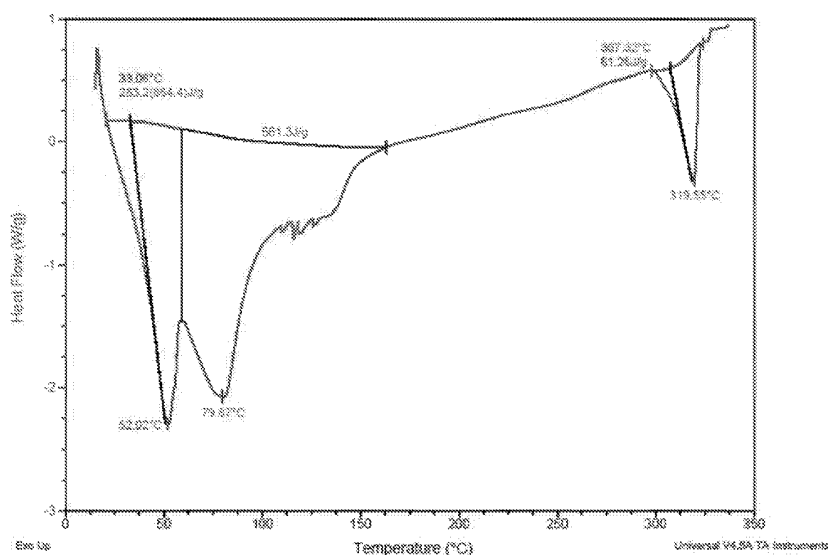
53121 (US). **LANDORF, Angela Krystine;** 1612 Gateway Blvd., Apt. #15, Beloit, Wisconsin 53511 (US). **SHEEHAN, Vivien M.;** 11485 Ridgcrest Drive, Roscoe, Illinois 61073 (US). **LU, Yingshuang;** 1740 Gateway Blvd., Apt. 222, Beloit, Wisconsin 53511 (US).

(74) **Agent: SALIBA, Raja N.** et al.; SUGHRUE MION, PLLC, 2100 Pennsylvania Ave., N.W., Suite 800, Washington, District of Columbia 20037-3213 (US).

(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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,

(54) **Title: ANTIMICROBIAL POWDERED COMPOSITIONS**

Figure 5



(57) **Abstract:** An antimicrobial powder, which includes a low molecular weight antimicrobial organic acid and a hygroscopic ingredient, is prepared according to a process wherein the components are combined in a solution to form a liquid slurry composition prior to drying to form a powder, such that drying the liquid slurry composition involves co-drying the components. The low molecular weight antimicrobial organic acid in the antimicrobial powder can be present in a crystal phase of both anhydrous and hydrate forms. The antimicrobial powder exhibits excellent properties, such as shelf stability, without the requirement of encapsulating agents. Methods for preparing the antimicrobial powders as well as applications of the antimicrobial powders in food and beverage products are also disclosed.

[Continued on next page]

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.

(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, ST, 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, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))