

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
27 April 2023 (27.04.2023)



(10) International Publication Number
WO 2023/069023 A2

- (51) **International Patent Classification:**
Not classified
- (21) **International Application Number:**
PCT/SG2022/050752
- (22) **International Filing Date:**
21 October 2022 (21.10.2022)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
10202111697Q 21 October 2021 (21.10.2021) SG
- (71) **Applicant: NATIONAL UNIVERSITY OF SINGAPORE** [SG/SG]; 21 Lower Kent Ridge Road, Singapore 119077 (SG).
- (72) **Inventors: HO, Dean;** c/o National University of Singapore, Faculty of Engineering / Department of Biomed-

ical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **CHOW, Edward Kai-Hua;** c/o National University of Singapore, Cancer Science Institute of Singapore, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **WANG, Peter Wen-Yow;** c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **YOU, Kui;** c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **BLASIAK, Agata;** c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **YEOH, Joe Ning;** c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **ONG, Yoong Hun;** c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road,

(54) **Title: SYSTEMS FOR FOOD PARAMETER OPTIMISATION**

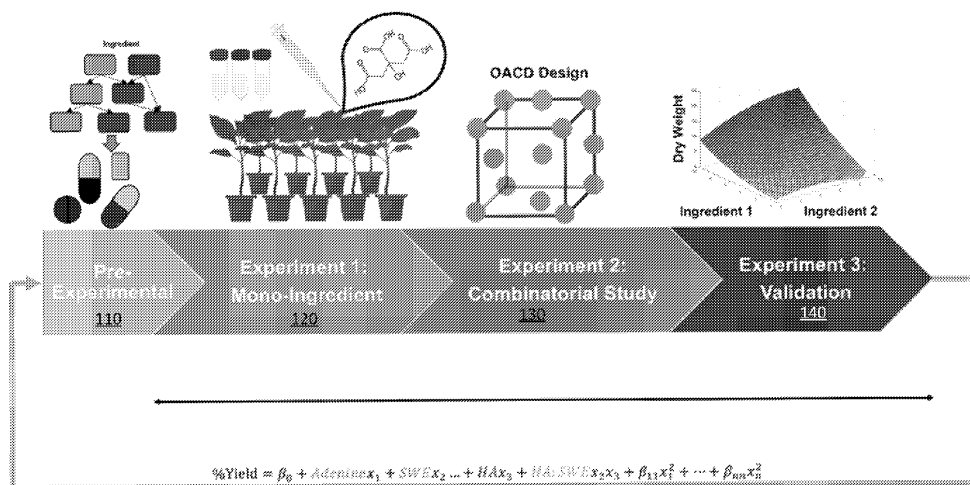


Figure 1

(57) **Abstract:** Disclosed is a system for target food parameter optimisation. The system receives a plurality of food production constraints and at least one target food parameter (target food parameter(s)), and processes the food production constraints using a pre-experiment model to identify a plurality of candidate ingredients. The system then receives mono-ingredient target food parameter impact data for each of the plurality of candidate ingredients, receives multi-ingredient target food parameter impact data for a subset of possible combinations of the candidate ingredients, and processes the mono-ingredient and the multi-ingredient target food parameter impact data to determine a ranked ingredient combination, the ranking being based on an expected optimisation of the target food parameter(s).

[Continued on next page]

Singapore 119077 (SG). **TRUONG, Thanh Lan Anh**; c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **ONG, Pang Qi, Jer-ica**; c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG).

(74) **Agent: DAVIES COLLISON CAVE ASIA PTE. LTD.;**
10 Collyer Quay #07-01, Ocean Financial Centre, Singapore 049315 (SG).

(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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, 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, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, 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, ME, 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).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*