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PII: S2215-017X(18)30129-2
DOI: https://doi.org/10.1016/j.btre.2018.e00271
Reference: BTRE 271

To appear in:

Received date: 13-5-2018
Revised date: 29-6-2018
Accepted date: 30-6-2018

Please cite this article as: Adebayo-Tayo B, Ishola R, Oyewunmi T, Characterization, antioxidant and immunomodulatory potential on exopolysaccharide produced by wild type and mutant *Weissella confusa* strains, *Biotechnology Reports* (2018), https://doi.org/10.1016/j.btre.2018.e00271

Characterization, antioxidant and immunomodulatory potential on exopolysaccharide produced by wild type and mutant *Weissella confusa* strains

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Highlights

- This research aimed at characterization, antioxidant and immunomodulatory potential of exopolysaccharide (EPS) produced by wild and mutant *Weissella confusa*. Wild *Weissella confusa* (WWCEPS) produced the highest EPS compare to the mutant strain. Eight (8) monosaccharides were present in the EPS. Galactose had the highest composition (34.60196 mg/100g and 33.47168 mg/100g EPS) in WWCEPS and mutant *Weissella confusa* EPS (MWCEPS). WWC and MWC EPS had antioxidant capacity. WWCEPS had the highest DPPH capacity, total antioxidant activity, hydrogen peroxide and reducing power activity (71%, 1.88%, 86.7% and 1.85%). Wild and mutant *Weissella confusa* EPS had immunomodulatory activity on the treated mice.

Abstract

Characterization, antioxidant and immunomodulatory potential of exopolysaccharide (EPS) produced by wild type and mutant *Weissella confusa* was investigated. The EPS production ranged from 5490.2 – 5580.7 mg/L. Wild type *Weissella confusa* (WWCEPS) had the highest EPS production. Eight (8) sugar moieties were present in the EPS. Galactose had the highest EPS composition (34.6 mg/100g and 33.5 mg/100g EPS) in Wild type *Weissella confusa* EPS (WWCEPS) and mutant *Weissella confusa* EPS (MWCEPS). Wild type *Weissella confusa* and mutant *Weissella confusa* EPS had antioxidant capacity. The scavenging assay for the antioxidant increased in a dose dependent (0.5 – 10 mg/mL) manner. Wild type *Weissella confusa* EPS had the highest 1,1-Diphemy 1-2-picryl-hydrazyl (DPPH) capacity, total antioxidant activity, hydrogen peroxide and reducing power activity (71%, 1.9%, 86.7% and 1.9%). The mice injected peritorially with mutant *Weissella confusa* EPS had the highest IgG and IgM (68 – 87 mg/dL and 64 – 70 mg/dL). IgA of the mice treated with Wild type *Weissella confusa* EPS