

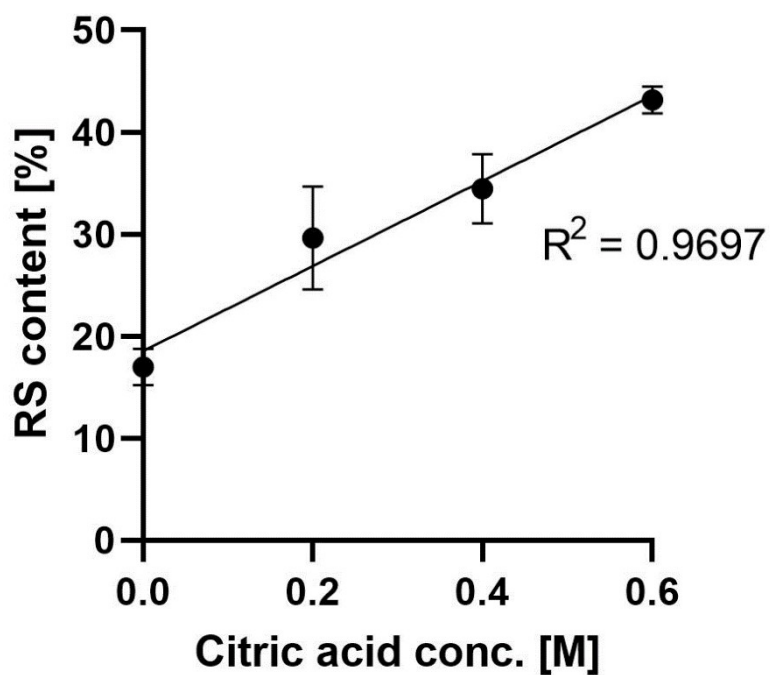
**Supplemental 1:** Characteristic of the particle size of native, heat-moisture and citric acid treated arrowroot starch.

	$D_{50}$ [ $\mu\text{m}$ ]	$D_{(4,3)}$ [ $\mu\text{m}$ ]	$D_{(3,2)}$ [ $\mu\text{m}$ ]
ARS	$14.2 \pm 0.2$ <sup>f</sup>	$14.7 \pm 0.2$ <sup>d</sup>	$7.8 \pm 0.1$ <sup>e</sup>
80 °C_16h	$30.7 \pm 1.6$ <sup>b</sup>	$38.3 \pm 2.4$ <sup>b</sup>	$14.5 \pm 0.6$ <sup>b</sup>
100 °C_1h	$33.2 \pm 2.5$ <sup>a</sup>	$42.6 \pm 3.0$ <sup>a</sup>	$15.6 \pm 0.8$ <sup>a</sup>
120 °C_30min	$34.6 \pm 0.8$ <sup>a</sup>	$44.4 \pm 2.0$ <sup>a</sup>	$16.1 \pm 0.3$ <sup>a</sup>
0M_CA	$30.2 \pm 0.5$ <sup>b</sup>	$42.6 \pm 1.4$ <sup>a</sup>	$14.8 \pm 0.3$ <sup>b</sup>
0.2M_CA	$27.1 \pm 1.1$ <sup>c</sup>	$43.0 \pm 1.4$ <sup>a</sup>	$13.5 \pm 0.3$ <sup>c</sup>
0.4M_CA	$24.3 \pm 1.7$ <sup>d</sup>	$37.8 \pm 3.9$ <sup>b</sup>	$12.5 \pm 0.7$ <sup>d</sup>
0.6M_CA	$22.5 \pm 1.3$ <sup>e</sup>	$30.9 \pm 1.7$ <sup>c</sup>	$11.9 \pm 0.4$ <sup>d</sup>

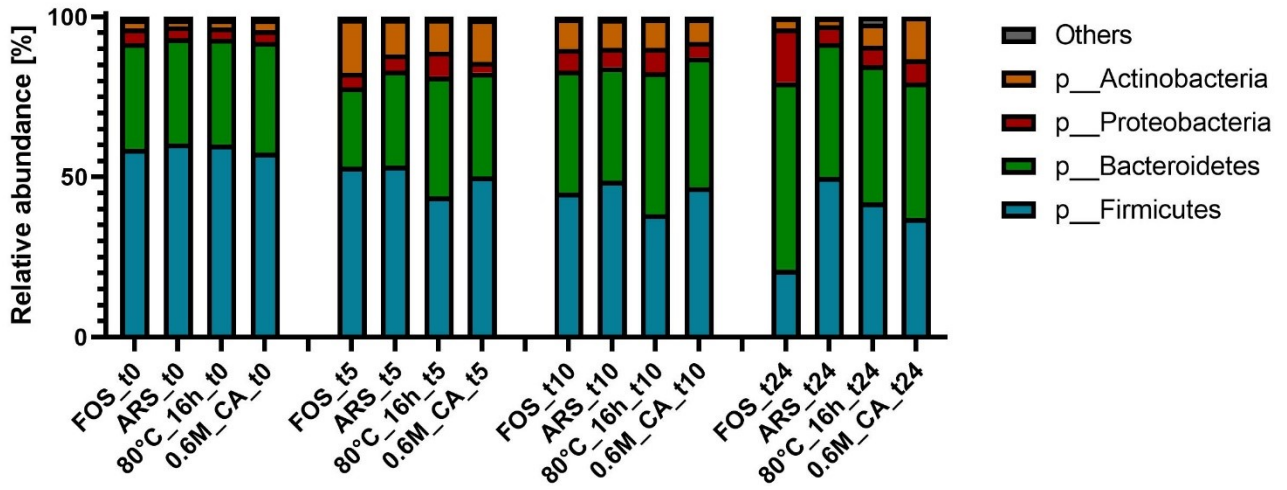
Mean  $\pm$  SD is calculated from triplicate measurements.

Values with different letters in the same column are significantly different ( $p < 0.05$ ).

$D_{50}$ : median diameter;  $D_{(4,3)}$ : particle diameter of volume;  $D_{(3,2)}$ : particle diameter of surface area.



**Supplemental 2:** Pearson correlation coefficient between citric acid concentrations to RS content.



**Supplemental 3:** Relative abundance plot of the gut microbial taxonomic composition at the phylum level after 24h of RS isolated from native and treated ARS versus FOS (positive control).