

Supplementary Material

Experimental Design

The broilers were distributed into seven batteries, 85 birds per battery. Each battery included five levels, and the space of each level was 0.85 m². There were 17 birds on each level, occupying a space of 0.05 m² each. There were seven experimental treatments (TRT), as follows: TRT 1 was the control group without algae; TRT 2 was supplemented with *Sargassum* sp. at 1% of the diet; TRT 3 with *Sargassum* sp. at 2% of the diet; TRT 4 with *Spirulina* sp. at 5% of the diet; TRT 5 with *Spirulina* sp. at 7.5% of the diet; TRT 6 with *Gracilaria* sp. at 0.5% of the diet; and TRT 7 *Gracilaria* sp. at 1% of the diet. Based on the results of the proximate analyses of the algae, these levels of algae were chosen and supplemented in the feed rations on dry basis. The diets were performed as isonitrogenic and isocaloric diets between study groups.

Results

All algal inclusions inhibited the growth of *Salmonella* sp. and improved LAB counts in the intestine of broilers, excepting the *Gracilaria* sp. at 0.5%, where LAB counts were similar to the control group. The *E. coli* counts decreased numerically but not significantly (Table 5).

Table S1. Wattle swelling changes, antibody titers, and microbial count as affected by different algal inclusions in five-week-old broiler chickens

	Wattle Swelling (mm)	Chicken Antibody Concentration (ng/ml)			Microbial Count (CFU/g of Caeca)			
		IgA	IgM	IgY	Log. LAB	Log. <i>E. coli</i>	Log. <i>Salmonella</i>	Intestinal pH
Control	1.47 ^b	0.00 ^b	0.03	0.09 ^b	3.15 ^b	7.15	1.25	7.24 ^a
<i>Sargassum</i> sp. (1%)	1.65 ^a	0.05 ^a	0.03	0.11 ^b	4.35 ^a	6.40	No growth	7.23 ^a
<i>Sargassum</i> sp. (2%)	1.63 ^a	0.05 ^a	0.02	0.07 ^b	3.65 ^a	6.50	No growth	6.12 ^b
<i>Spirulina</i> sp. (5%)	1.80 ^a	0.01 ^b	0.03	0.10 ^b	3.95 ^a	6.65	No growth	6.54 ^b
<i>Spirulina</i> sp. (7.5%)	1.78 ^a	0.01 ^b	0.03	0.08 ^b	3.90 ^a	6.40	No growth	7.01 ^a
<i>Gracilaria</i> sp. (0.5%)	1.75 ^a	0.01 ^b	0.02	0.36 ^a	3.15 ^b	6.00	No growth	6.01 ^b
<i>Gracilaria</i> sp. (1%)	1.64 ^a	0.00 ^b	0.03	0.09 ^b	3.50 ^a	6.05	No growth	6.50 ^b
SEM	0.401	0.02	0.03	0.18	0.19	0.47	0.41	0.87
P-value	0.037	0.030	0.354	0.045	0.012	0.296	0.495	0.045

^{a-b} Means in column with no common superscripts are significantly different ($p \leq 0.05$)

Values are expressed as means (n = 5 for each dietary treatment), pooled standard error of means (SEM)

IgA = Immunoglobulin A; IgM = Immunoglobulin M; IgY = Immunoglobulin Y