

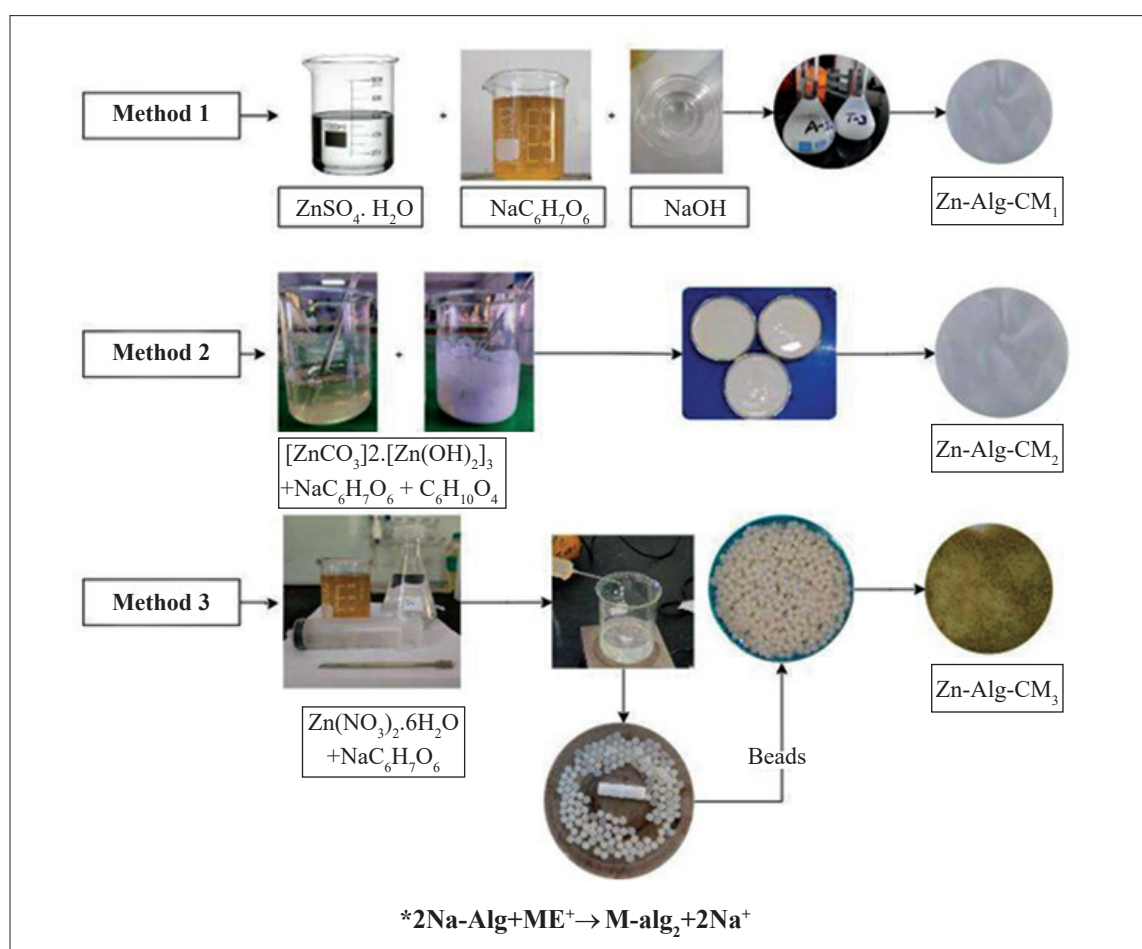


Preparation, characterization and utilization of a novel feed supplement in poultry

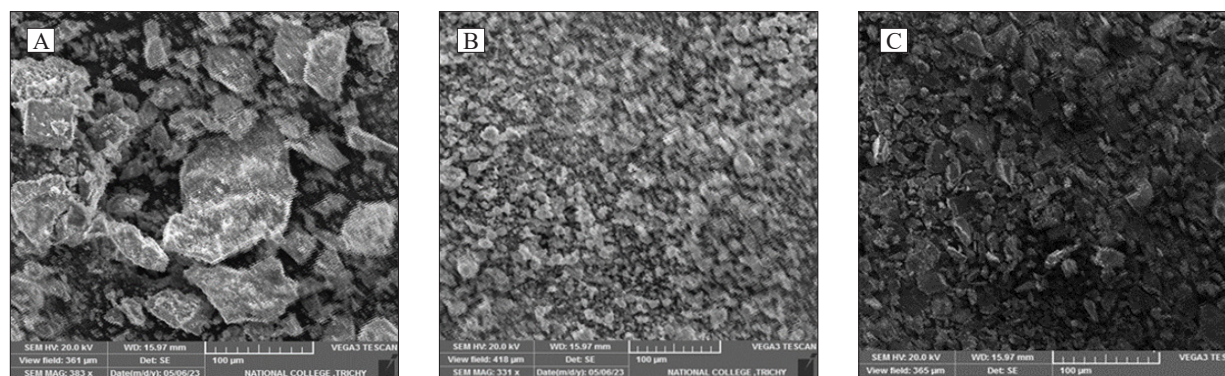
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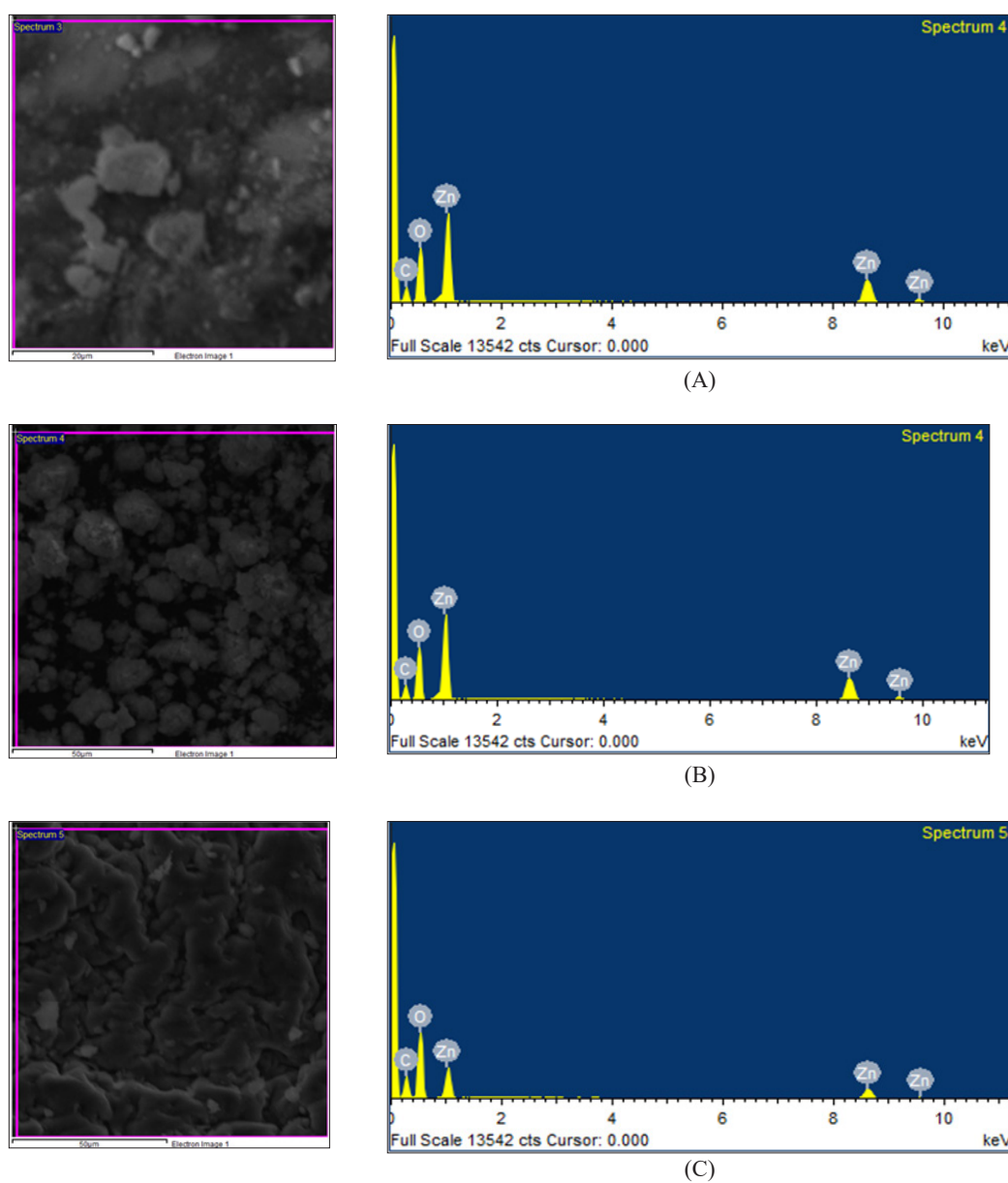
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Supplementary Fig.1. Schematic representation of production of Zn-Alg-CM.



Supplementary Fig. 2. Scanning Electron Microscope (SEM) images of a zinc alginate complex (A) Zn-Alg-CM₁, (B) Zn-Alg-CM₂, and (C) Zn-Alg-CM₃.



Supplementary Fig. 3. SEM-EDX images of zinc alginate complex prepared by using (a) Zn-Alg-CM₁, (b) Zn-Alg-CM₂, and (c) Zn-Alg-CM₃.

Supplementary Table 1. FTIR spectrum data for the analyzed functional group of zinc alginate complex

Group (per cm)	(O-H)	(C-H)	(COO) _{asym}	(COO) _{sym}	(C-O)	$\Delta\nu(\text{COO})$
SodiumAlginate	3783	3043	1608	1406	1026	202
Zn-Alg-CM ₁	3702	-	1601	1388	1125	213
Zn-Alg-CM ₂	3563	-	1501	1393	1050	108
Zn-Alg-CM ₃	3518	2822	1605	1401	1025	204

* $\Delta\nu(\text{COO})$, change in the vibrational frequency of the carboxylate (COO) functional group.

Supplementary Table 2. ABST zinc alginate diameter of zone of inhibition (mm)

Antibiotics (mcg)	<i>E. coli</i>	<i>S. aureus</i>	<i>Salmonella</i>
Nalidixic acid (NA 30)	23 mm (S)	13 mm	18 mm
Azithromycin AZM (15)	20 mm	18 mm (S)	14 mm (S)
Ampicillin (AMP 10)	15 mm (I)	29 mm (S)	-
Ciprofloxacin (C 5)	27 mm (I)	19mm (I)	29 mm
Clindamycin (CD 2)	R	25 mm (S)	R
Amoxycillin (AMX 25)	10 mm	25 mm	14 mm
Penicillin (P 2)	R	28 mm (R)	10 mm
Tetracycline (TE 30)	16 mm(S)	21mm (I)	13 mm
Vancomycin (VA 30)	R	17mm	R
Meropenem (MRP 10)	23 mm (S)	28 mm (S)	25 mm
Chloramphenicol (C 30)	23 mm (S)	22 mm (S)	27 mm
Ceftazidime (CAZ 30)	19 mm (R)	12 mm (S)	19 mm
Sodium alginate	R	R	R
Zn-Alg-CM ₃	21 mm	20 mm	20 mm

S, Sensitive; I, Intermediate; R, Resistant.