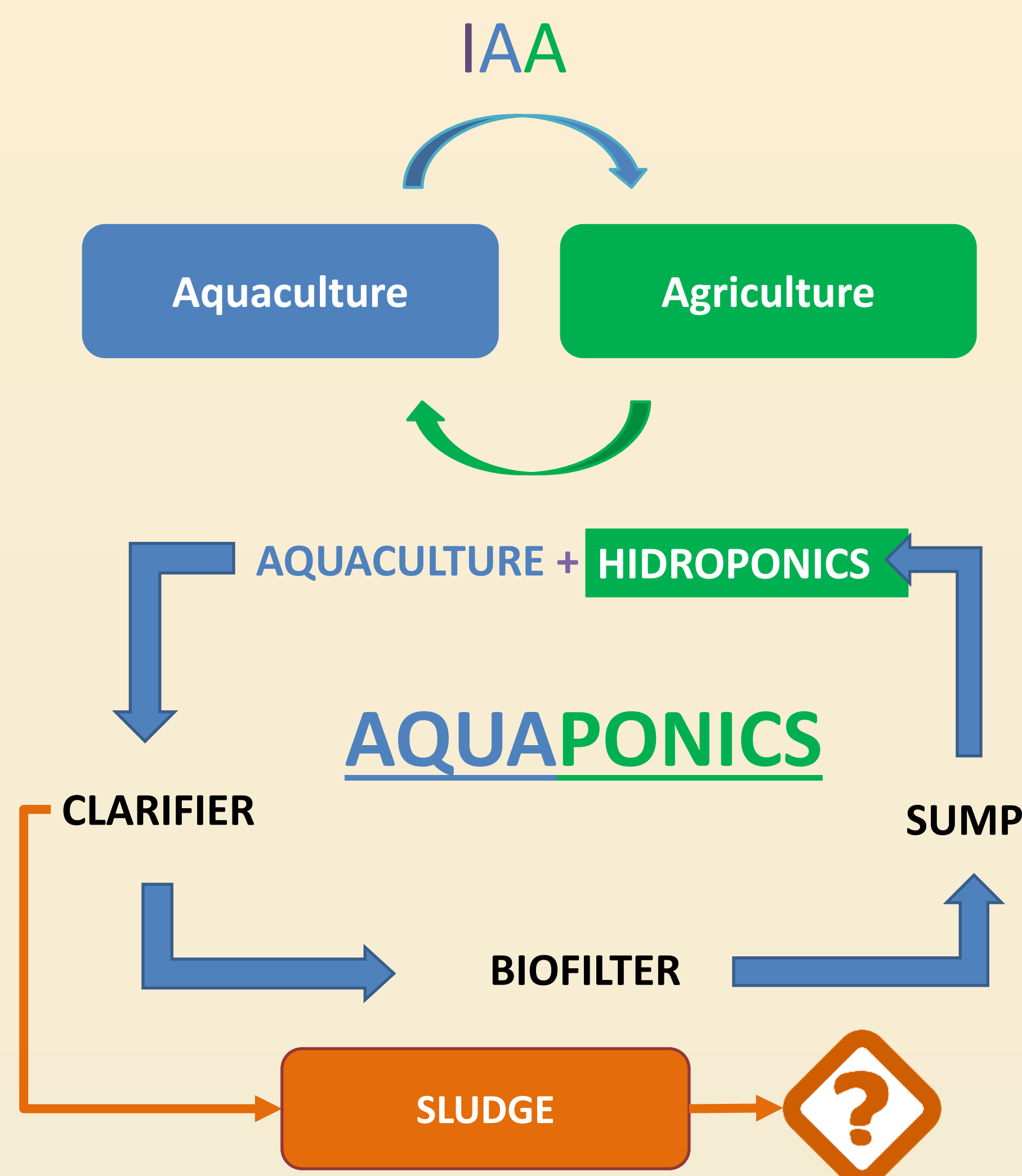


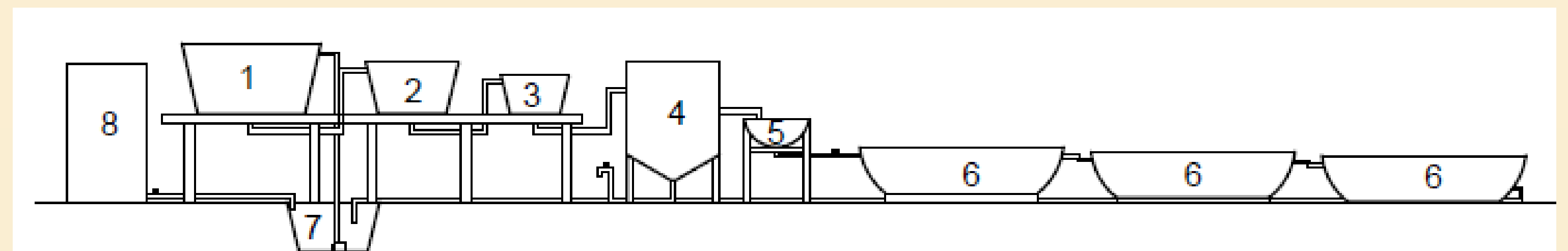
AQUAPONIC SLUDGE TO PRODUCE LETTUCE AND CHICORY IN SOIL

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INTRODUCTION



MATERIAL AND METHODS



1, 2, 3 - fish; 4 - clarifier; 5 - Biofilter; 6 - plant; 7 - sump; 8 - reservoir.



Sludge collection



Sludge application

NPK

Sludge

Control

Soil treatments

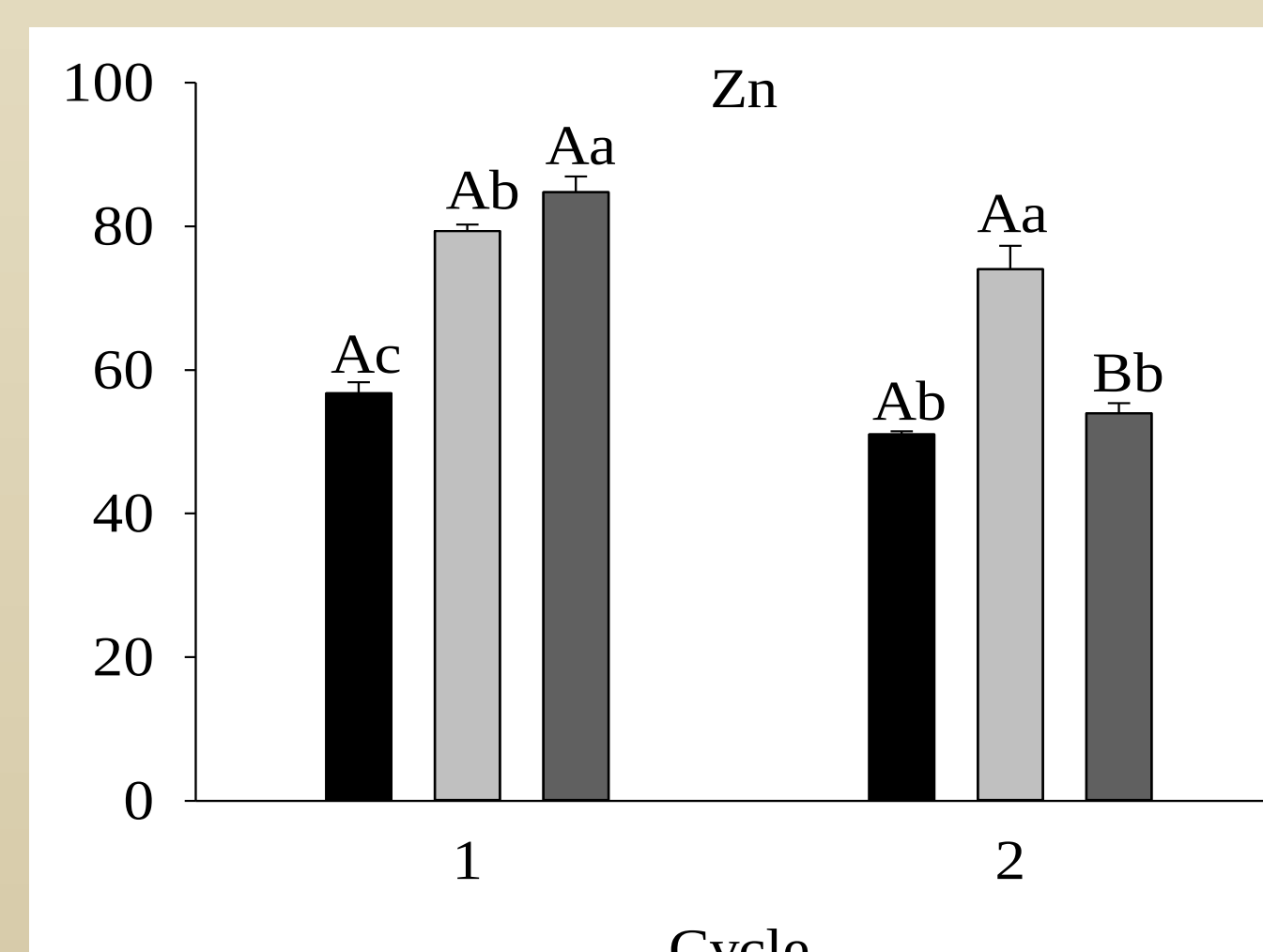
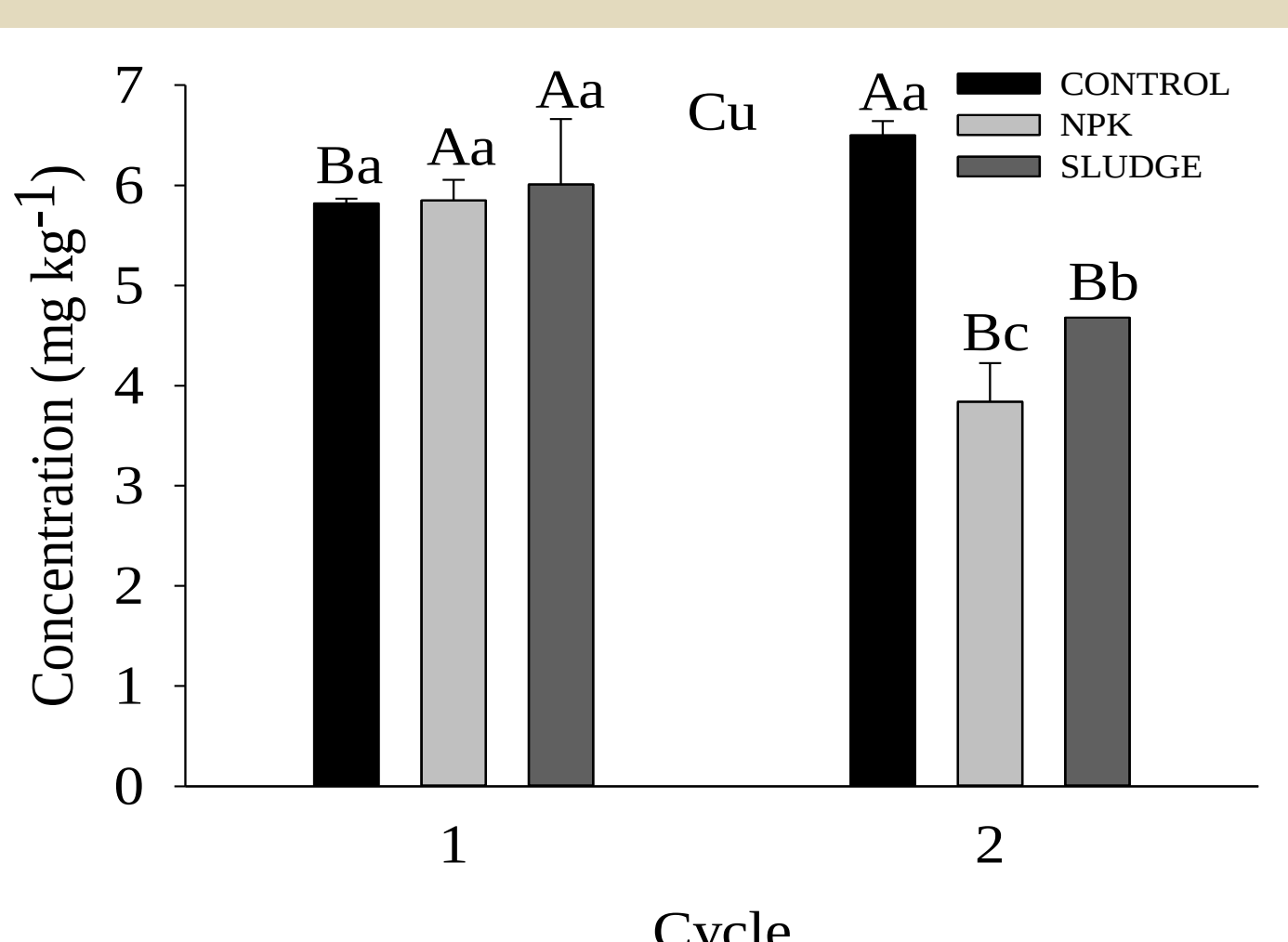
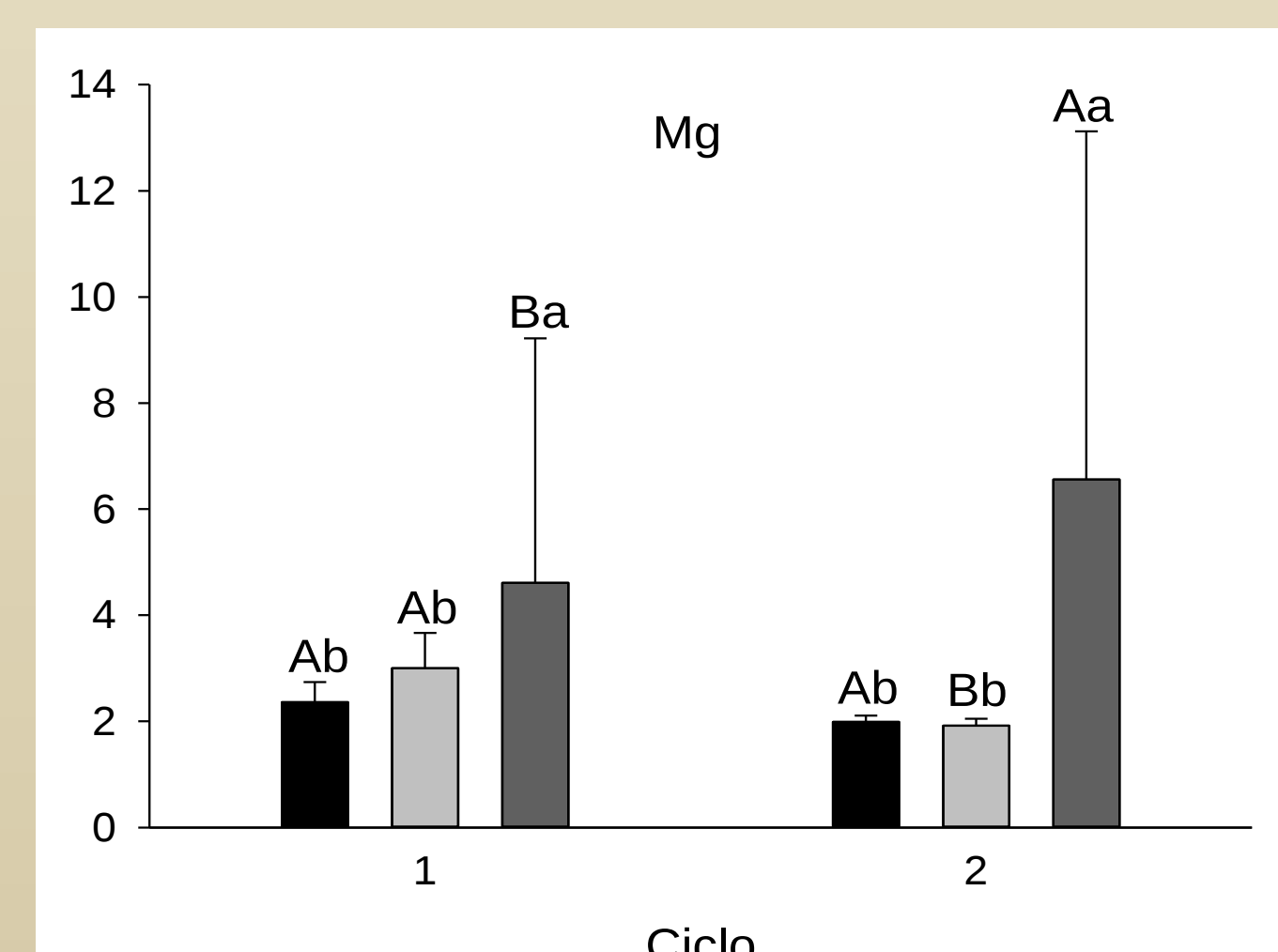
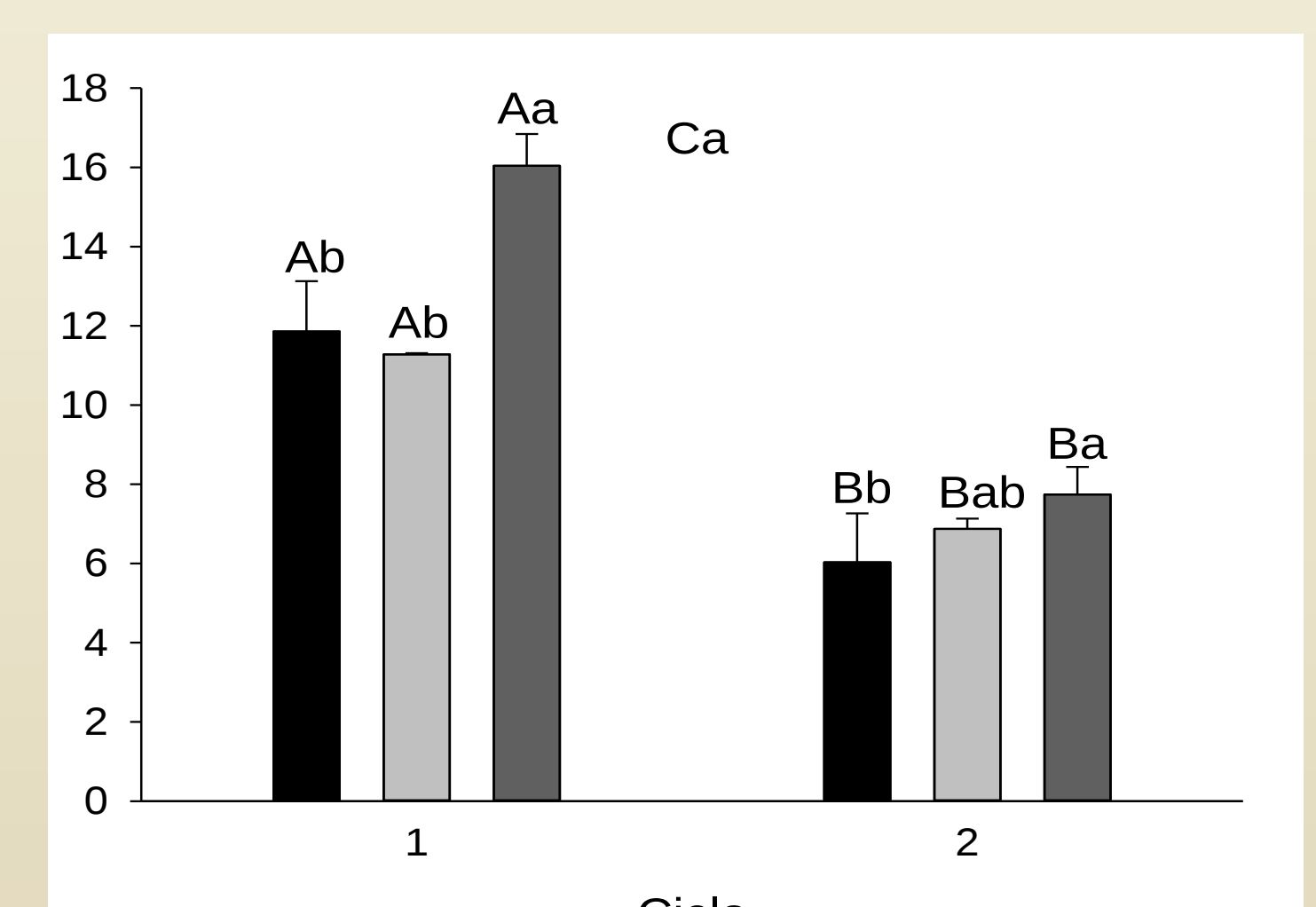
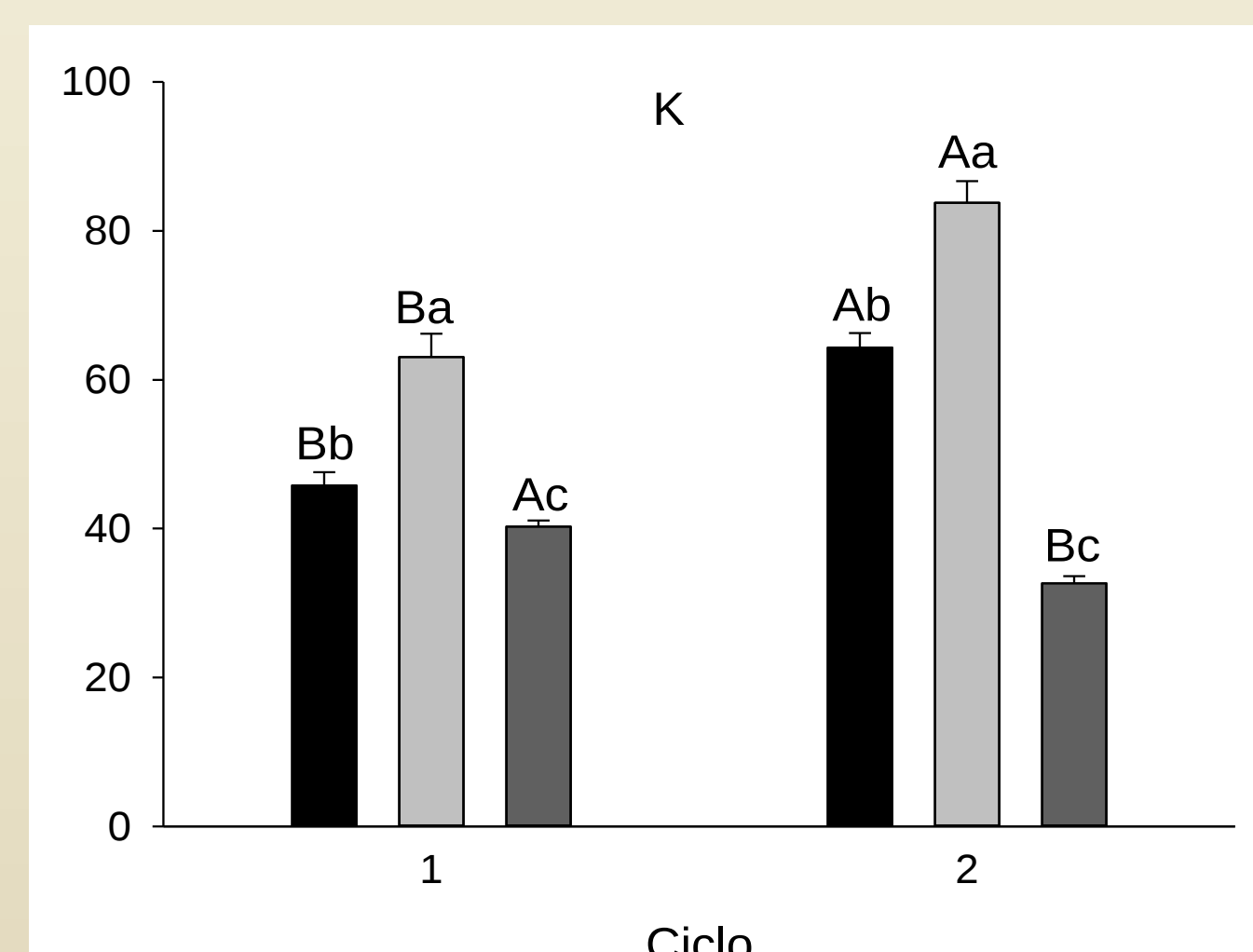
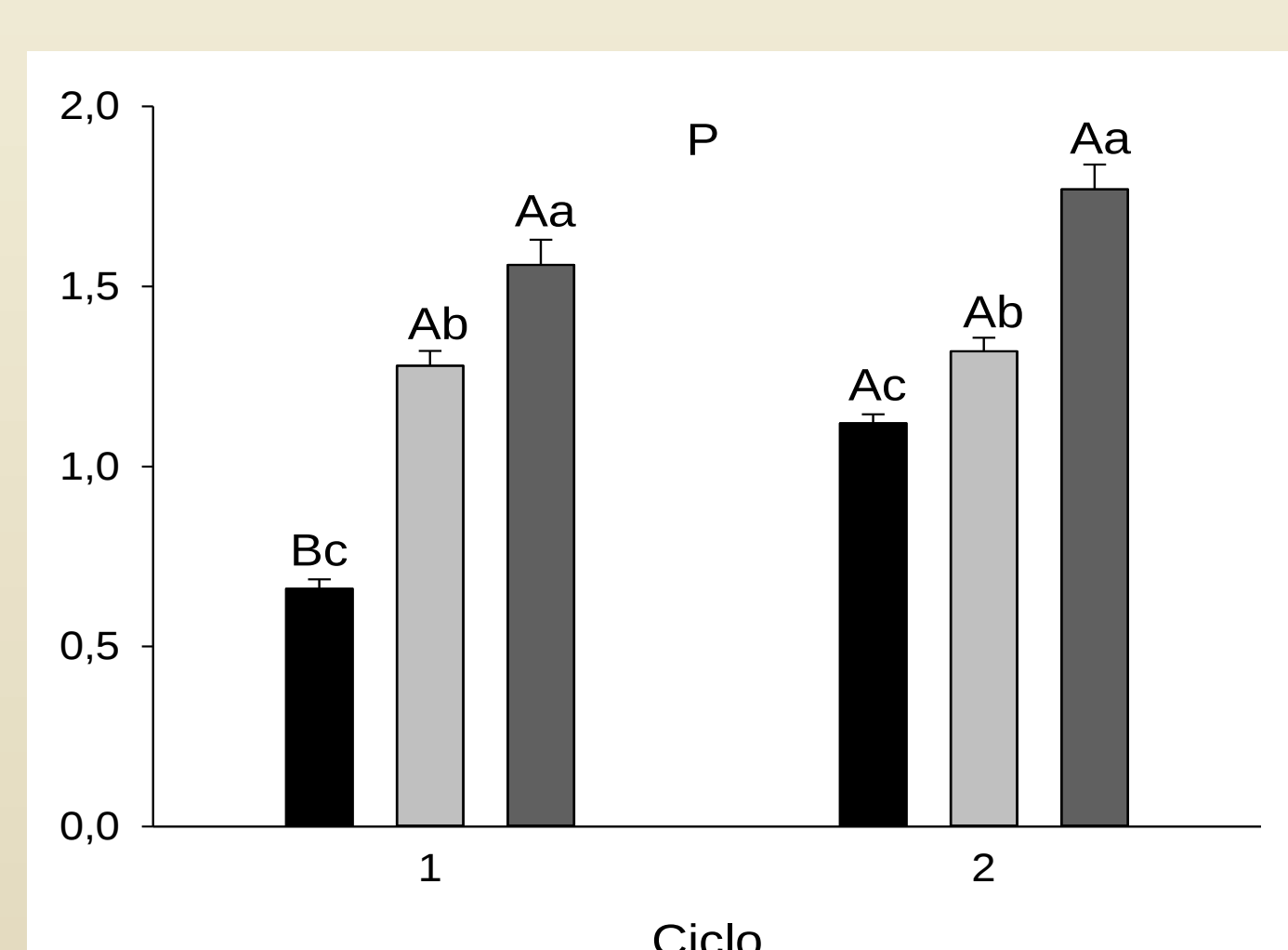
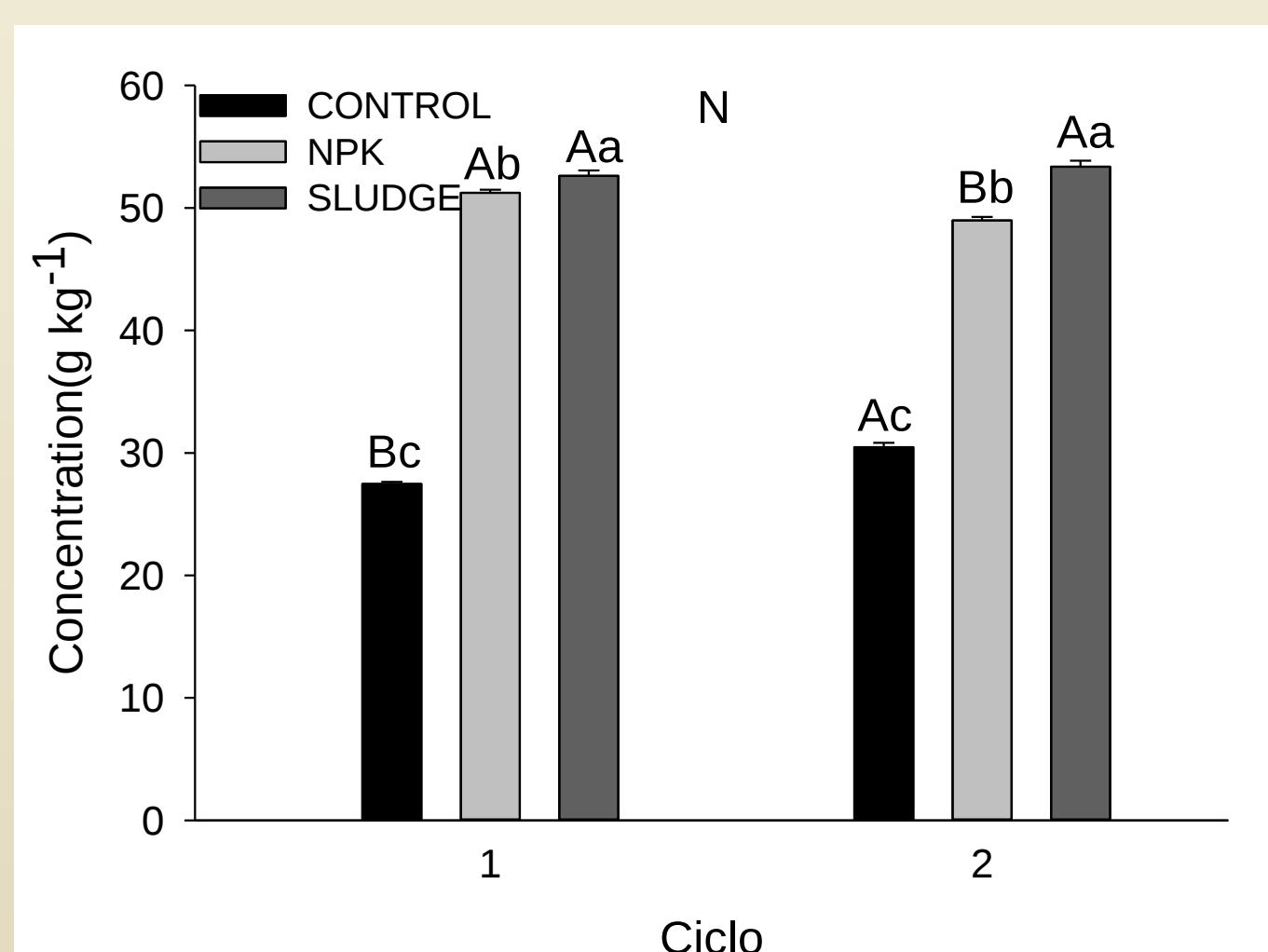
RESULTS AND DISCUSSION

Nutrient retention in sludge (%)

N	7,32
P	16,24
K	1,86
Ca	13,75
Mg	7,09
Cu	21,44
Zn	22,66

Treatment	Plant production in soil							
	Lettuce (Lactuca sativa)							
	NL		HL		FM		DM	
	1º cicle	2º cicle	1º cicle	2º cicle	1º cicle	2º cicle	1º cicle	2º cicle
CONTROL	5,00 Bb	8,00 Ab	7,62 Bb	8,87 Ac	4,62 Bc	6,12 Ab	0,45 Ac	0,48 Ac
NPK	9,00 Ba	10,00 Aa	11,75 Aa	11,12 Ab	27,00 Aa	21,12 Ba	1,61 Aa	1,33 Ab
SLUDGE	9,00 Ba	11,00 Aa	11,87 Ba	12,87 Aa	12,75 Bb	23,00 Aa	1,30 Ab	1,56 Aa

Lettuce tissue



Conclusion

Aquaponics sludge can be used to enhance crop productivity in land based agriculture