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Diploma in Pharmacy 1st Year

Pharmaceutics

Experiment

To formulate sodium alginate gel

Aim:

To formulate sodium alginate gel as per Monograph standards and dispense with appropriate packaging and labelling.

Reference :

‘ Dr. Gupta G.D , Dr. Sharma Shailish , Dr. Sharma Neelam ’
“Practical Manual of Pharmaceutics” Published by Nirali Prakashan, Page
no 45 - 50

Apparatus and Materials Required :

0.1 M calcium chloride solution, 3 250-mL beakers or flasks, 0.05 M copper(II) chloride solution, 250-mL Erlenmeyer flask, 2% sodium alginate solution, forceps, saturated sodium chloride solution, 100 ml jumbo pipet, distilled water and wash bottle, magnetic stirrer or stirring rod, balance. 0.1-g precision paper towels, and waste beaker of 1-L

Theory :

Sodium alginate ($\text{NaC}_6\text{H}_7\text{O}_6$) is a linear polysaccharide alginic acid derivative made up of 1,4- B-d-mannuronic (M) and α -l-guluronic (G) acids. The most significant benefit of alginates in aqueous solutions is their liquid-gel behaviour. Alginate gel particles are a popular hydrocolloid gel particle because they are biocompatible, nontoxic, biodegradable, inexpensive, and easy to make. For various applications, the size and shape of the gel particles are critical.

Formulation

S.No	Ingredients	Required Quantity
1)	0.1 M calcium chloride solution	50 mL
2)	0.05 M copper(II) chloride solution	50 mL
3)	2% sodium alginate solution	5 mL
4)	saturated sodium chloride solution	50 mL
5)	distilled water	q.s.

Procedure :

- The three beakers or flasks should be labelled as A, B, and C and approximately 100 mL of the appropriate solution should be added to each one.
- A pipet-full of sodium alginate solution should be drawn up into a clean. jumbo pipet. Then the pipet bulb should be squeezed slowly and the sodium alginate solution should be added in one continuous stream into the calcium chloride solution in Beaker A
- Step 2 should be repeated again, sodium alginate into the copper (II) chloride solution should be added in Beaker B.
- Wait for about 1-2 minutes for products to form.
- Several insoluble polymer "worms" should be removed gently from the solution in Beaker A with the help of cleaned forceps.
- Calcium alginate should be rinsed with distilled water from a wash bottle and the product should be placed on a paper towel. The texture, form, and appearance of calcium alginate should be observed.

Labelling :

Labelling		
Sodium Alginate Gel I.P. (250ml)		
R _x	Ingredient	Quantity
Brand Logo FOR EXTERNAL USE ONLY	Calcium chloride solution	50ml
	Copper chloride solution	50ml
	Sodium alginate Solution	5ml
Mfg. date:11/21 Exp. date:11/24 Batch No.: 4324	Lic No.: ABCD 004	Sodium chloride solution Purified water
		50ml q.s.
Storage: Store at 4°C in air tight container.		

Packaging and Storage :

Sodium alginate should be stored at 4°C in an airtight container.

Result :

The cetrimide cream was prepared, packaged and labelled.

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