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Short Communication

NOVEL PHARMACEUTICAL DOSAGE FORM

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ABSTRACT

Objective of the proposed idea is to introduce novel pharmaceutical dosage form prepared of biodegradable polymeric balls. These polymeric balls will encircle oral liquid dosage forms within an edible membrane which can be flavoured, coloured, and can be used as unit dosage form. It will be prepared by reaction between sodium alginate and calcium chloride resulting in spherical, flexible ball of calcium alginate. Current research will eliminate the use of plastics as syrups or other liquid dosage forms will be provided in these balls which will be more economic and eco-friendly.

Keywords: novel pharmaceutical dosage, polymeric balls, sodium alginate, eco-friendly

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INTRODUCTION

Process of spherification employs sodium alginate and soluble calcium salt to shape a liquid into spheres. Small spheres can easily be formed by introducing liquid containing sodium alginate in solution form into an aqueous solution containing calcium solution (e.g. calcium chloride). By chemical interaction, insoluble calcium alginate is formed on the surface and these results into the formation of a film and alginate liquid is entrapped within the film. This film is like a flexible skin. Round balls which are produced in this way are rinsed with water to remove the adhering impurities of calcium solution etc. The formed balls may be easily used in food or beverages. This method emerged because of the effort of Bulli in the year 2003. The method involved jellification of a liquid forming the sphere when submerged in a bath. Different sizes can be given to such spheres. Depending on the shapes different names have been given to them, for example caviar when they are small. For larger sizes, ravioli, eggs and gnocchi names have been allotted. All these spheres have a thin membrane and flavoured liquids are filled in these. Flexibility of spheres is nice and it can be

carefully manipulated. Another application of spheres is this that solid element can also be introduced in them. Therefore, multiple flavours and textures can be filled in one space. Such an idea was given in 1942 in Britain by William Peschardt (a food scientist of Unilever). Sergi Estragues and Joachim Vives, demonstrated the technique to Ferran Adria. El Bulli restaurant was used for more creative and surprising uses. Skipping rocks lab is seaweed-tech start up based in London. Ooho, edible water bottles were created by them employing the technique of spherification.

METHODS

Sodium alginate and calcium lactate were procured from S.G.S.I.T.S, Department of Pharmacy, NDDS laboratory. The technique of spherification can be nicely done at home using molecular gastronomy kits. All the ingredients and tools required to prepare any type of sphere are there in the kit of Molecular Gastronomy. There are advantages and disadvantages of three types of techniques of spherification.

Method 1: Spherification- The liquid, which is to be filled inside the spheres, containing sodium alginate

(1%). This liquid is dripped into a bowl which contains solution of any water soluble calcium salt in cold condition.

Method 2: Reverse spherification- In this case bath contains sodium alginate solution in water. Reverse spherification is meant for those substances which contain calcium (e.g milk) or have high acid/alcohol content. The process requires dripping the substance (containing calcium lactate or calcium lactate gluconate) into the bath solution.

Method 3: Frozen reverse spherification- This method requires prefreezing the spheres containing calcium lactate gluconate. The frozen spheres are dipped in a bath containing sodium alginate solution.

RESULTS

There was similarity in all three methods. Also they gave similar results resulting into a sphere of liquid held by a gel membrane (thin).

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CONCLUSION

Proposed research will introduce a novel pharmaceutical dosage form for internal and external use.



Figure 1: Novel Pharmaceutical dosage form

