OBJECTIVE
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In the current era the multiple unit dosage forms have become popular for the several reasons. Notwithstanding, they are expensive to prepare, they are preferred due to the number of advantages. Pellet products not only possess the advantages cited earlier, but they also appear to have potential in marketability over other solid dosage forms. Apart from the improved stability as compared to the monolithic / single unit dosage forms, they can be successfully used to prepare controlled release dosage forms.

Direct pharmaceutical applications of the process for the development of pellets were first published in the literature in the early 1970s and the process has been the subject of intensive research ever since.

Pelletization is increasingly applied currently for the preparation of oral controlled-release dosage forms. The production of the particles, which are regular in shape and size, can be achieved with the application of the proper polymer auxiliary materials and new pharmaceutical technological methods. Regularity in size and shape, attained by the optimization of several parameters, can promote the coating procedure.

Notwithstanding, the specialized processing equipment required and the high cost of the pelletization process in the development of oral dosage form, it has steadily been increasing in popularity.
As pellets are considered as potential delivery systems for new chemical entities, they are predominantly utilized for products already in the market. The pharmaceutical industry is striving hard to develop facilities for the production of palletized products. They are either modifying the available set-up or else installing the new one. Equipment which is readily available in a given setting e.g. coating pans, tends to obviate the need for the purchase of a new specialized machine. Unfortunately, except in special cases, the pelletization processes are usually lengthy and expensive. Processing of a single batch may sometimes requires hours or even days to be completed. As a result, the processing cost incurred offsets the savings made due to the availability of the equipment, and boost the overall manufacturing cost.

Conversely, if the short processing time is desired it becomes mandatory to utilize highly efficient and at times, unique piece of equipment that require the allocation of substantial capital investment. Extruders, spheronizers and rotor granulators fall under this category. Although there are various methods to convert the fine powdered material into free flowing spherical agglomerates, but these are having limitations, which are given as below:

- **High initial capital** extrusion / spheronization
- **Tedious and difficult to control** Pan coating method
- **Contamination of product** Powder layering
- **generation of heat, high-energy consuming process**, extrusion / spheronization
- **Degree of mixing, drying, over-wetting, dust generation, contamination and mostly depends on art rather than science** i.e. powder layering.
• **Inaccessibility of nozzle, overlap of adjacent spray zones** i.e. Solution / suspension layering.

• **Not suitable for heat labile drugs, tedious** i.e. melt spheronization and fluidized bed method

Thus it confirms that, all the manufacturing processes have some limitations, and it is true acceptable that not a single ideal method can be developed which meets all of the desired features. Above are the points which motivates research workers to develop such a method cum technology which is able to overcome major problems enlisted as above i.e. process time, running cost, etc.

Except the extrusion spheronization process, other processes can not be controlled well. Most of them require skilled staff to execute. Such processes are very difficult to scale-up for the mass level production.

As described earlier, the extrusion spheronization process which requires very high initial set up. Specially the small scale industry can not afford to borne such huge cost. Therefore, the pelletized products, although having a plenty of advantages, could not become as common as the tablet dosage forms.

In the present work the attempt has been made to develop such a process of pelletization which would incur short processing time and would be affordable to run even by the small scale industry exactly simulating the usefulness of hand operated capsule filling machine. At the same time the machine would be able to be operated at large scale as well. Such process would be controlled by optimizing certain parameters and thus it would be more scientific than merely be the art based process. That means the process would be operable even by the unskilled persons.

In the existing processes of pelletization a significant time is required for a one particular step i.e. spheronization, in an attempt to obtain the uniform
spherical units. This step does not complete all of a sudden, rather it requires a long time as it has to develop gradually within the certain course of time. Obviously, the overall processing time will get affected and thus a substantial longer time is required for the completion of the process to obtain the pellets.

In the present investigations the attempt will be made to reduce time required for the spheronization step. This would automatically reduce the overall processing time and thus speeding-up the production rate. Moreover, the process would be controllable by the various operational parameters, making it based more on science than the art. An unskilled person would be able to operate it. Labor cost of unskilled person is much less than that of skilled persons. As a result, the overall processing cost would be much less than any other existing process.