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CHILKUR BALAJI COLLEGE OF PHARMACY

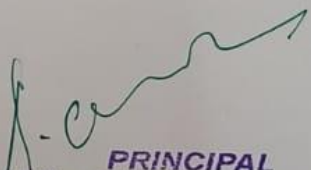
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DISSOLUTION STUDIES



Dissolution is the process in which a substance forms a solution. Dissolution testing measures the extent and rate of solution formation from a dosage form, such as tablet, capsule, ointment, etc. The dissolution of a drug is important for its bioavailability and therapeutic effectiveness. Dissolution and drug release are terms used interchangeably.

To properly evaluate the dissolution of drug products, it is critical for procedures to be standardized. This standardization helps to show consistent quality in production and may serve as a predictive measure of efficacy.


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INSTRUMENTATION AND HANDLING OF HPLC



High-performance liquid chromatography (HPLC), formerly referred to as high-pressure liquid chromatography, is a technique in analytical chemistry used to separate, identify, and quantify each component in a mixture. It relies on pumps to pass a pressurized liquid solvent containing the sample mixture through a column filled with a solid adsorbent material. Each component in the sample interacts slightly differently with the adsorbent material, causing different flow rates for the different components and leading to the separation of the components as they flow out of the column.

Chromatography may be preparative or analytical. The purpose of preparative chromatography is to separate the components of a mixture for later use, and is thus a form of purification. This process is associated with higher costs due to its mode of production. Analytical chromatography is done normally with smaller amounts of material and is for establishing the presence or measuring the relative proportions of analytes in a mixture.



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CRUDE DRUG IDENTIFICATION



Physical evaluation

Physical evaluation of crude drugs is achieved by the determination of various physical parameters using physicochemical techniques. Such parameters include: the determination of solubility; specific gravity; optical rotation; viscosity; refractive index; water content; degree of fiber elasticity; ash values, extractive values; and foreign organic matter.

Biological evaluation

This refers to the evaluation of therapeutic/pharmacological, enzymatic, gene modulating, and toxicological activity of the crude drug and/or its active principle using several models. A recent model of noted interest is network pharmacology where multitarget drugs may prove more efficacious than traditional ones [37]. Ultimately, biological evaluation determines therapeutic activity of the drug or active principle, potency, as well as toxicity, based on the chemical constituents present and their content.

Microscopic examination



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HANDLING OF TABLET PUNCHING MACHINE



A tablet punching machine is useful for compressing pharmaceutical powder formulations into the form of tablets. This machine is also known as the tablet compressing machine. It is very useful to create tablets of uniform shape and size as well as weight. This machine is vital to the pharmaceutical industry besides which it is also useful in several other industries like cosmetic, petrochemical, etc.

With the technological evolution over years, tablet press manufacturers have been highly successful in developing high-end models of rotary tablet press machines to meet high production requirements. This mechanical device was developed with single or several tooling stations to compress granules or powder into tablets of uniform style. The advantage of the tablet machine is that high output can be achieved with minimal labour. The rotary tablet press also makes sure that it decreases the waste of valuable formulation in non-specific tablets. Since this advanced machine offers immense accuracy and consistency in the manufacturing process, they are used for research and development purposes too.



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