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**SUMMARY SHEET**

Criteria 3	Q <sub>n</sub> M	3.3.2.	2017-18 To 2021-22
	Title	<b>Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years</b>	

3.3.2.1. Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year wise during last five years

The following enclosed data contains details of books and book chapters in edited volumes/books published and papers in national/ international conference proceedings by teachers during the last five years

Diabetes mellitus (DM) is one of the most common chronic disorder with increasing prevalence worldwide. Different classes of oral anti-hyperglycemic agents with nearly equipotent efficacy are now available; however, almost all of them are associated with one or more adverse effects. The new approaches in management of type 2 DM (T2DM) are based upon the effects of incretin hormones; Glucagon-Like Peptide-1 (GLP-1), Glucose-dependent insulintropic peptide (GIP) and dipeptidyl peptidase (DPP-IV) inhibitors, which act via enhancing the incretin secretion. QSAR is the computer-based mathematical model which establishes a correlation between structure and its biological activity. In present studies, QSAR of one of the reported triazolopiperazine based  $\beta$ -aminoamides have been studied. In present studies, an attempt was made to synthesize the novel and selective 3-amino-1-(8-(cyclopropyl(3-mercapto-4H-1,2,4-triazol-4-ylamino)methyl)-2-(trifluoromethyl)-5,6,7,8-tetrahydro-imidazo(4,5a)-piperidine). The details of the regression analysis, QSAR, rationale behind design, synthesis, structural characterisation and DPP-IV enzyme inhibitory activity are presented.



Ketaki Dhane

## Design, Synthesis, QSAR Studies of some DPP-IV Inhibitors

Design, Synthesis, QSAR studies and Biological  
evaluation of Novel Triazolopiperazine Based DPP-IV  
Inhibitors



Mrs. Ketaki S. Dhane Asst. Prof in Department of Pharmaceutical Chemistry at Indira Institute of pharmacy Sadavali affiliated to Mumbai University, Done B. Pharm from Shivaji University and M. Pharm from Savitribai Phule Pune University and pursuing Ph.D. from Jaipur National University, Rajasthan, having a total of 9 years of teaching experience.



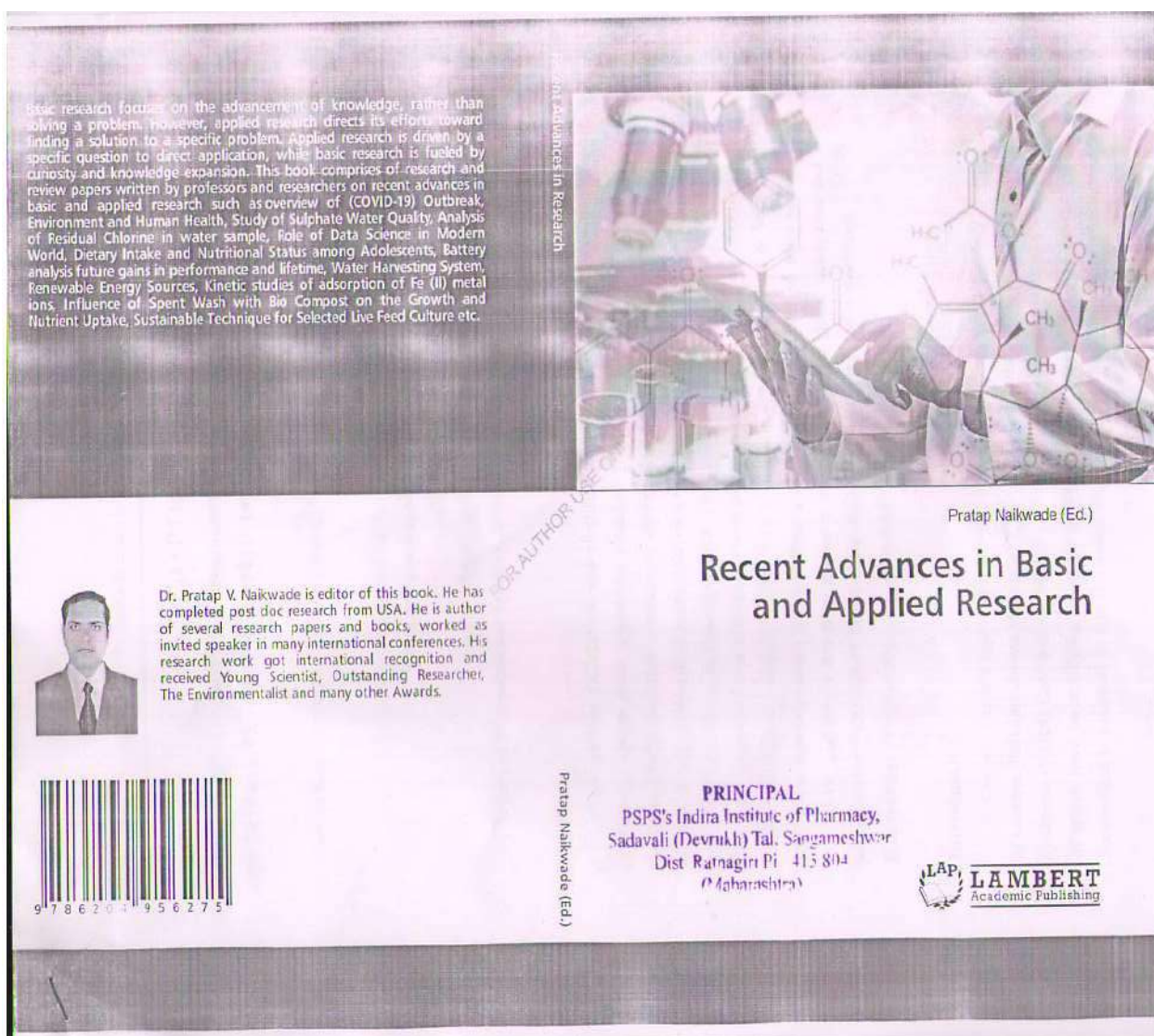
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## CHAPTER 1

### World Health Organization Proclaimed Global Crisis: An overview of the 2019 new Coronavirus (COVID-19) Outbreak

Manish Kumar Gupta<sup>1</sup>, Ketaki Dhane<sup>2\*</sup>, Hemant Chikhale<sup>3</sup>, Amol khade<sup>4</sup>,  
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#### Abstract

A novel coronavirus, COVID-19, was identified as the pathogenic agent (WHO). The pandemic of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS)-related coronavirus disease 2019 (COVID-19) is sweeping the world. A strange outbreak of pneumonia with no known cause occurred in Wuhan City, Hubei Province, China, in December 2019. The virus was discovered in bats in Wuhan, China, and then transferred to humans via an unknown intermediary species. COVID-19 has not yet been successfully treated with a clinically approved antiviral or vaccine. Only a few broad-spectrum antiviral drugs have been studied in clinical trials against COVID-19, and only a few have proven to be successful. The global emergence and pathogenicity of COVID-19 infection are summarized and compared in this paper.

**Keywords:** COVID-19, Corona virus, SARS, MERS, Pneumonia

#### Introduction

Coronavirus is a significant infection that mostly affects the respiratory system of humans. Previous corona virus (CoV) outbreaks include the severe acute respiratory syndrome (SARS)-CoV and the Middle East respiratory syndrome (MERS)-CoV, both of which have been labelled as major public health threats. A group of people was hospitalized to hospitals in late December 2019 with an initial diagnosis of pneumonia

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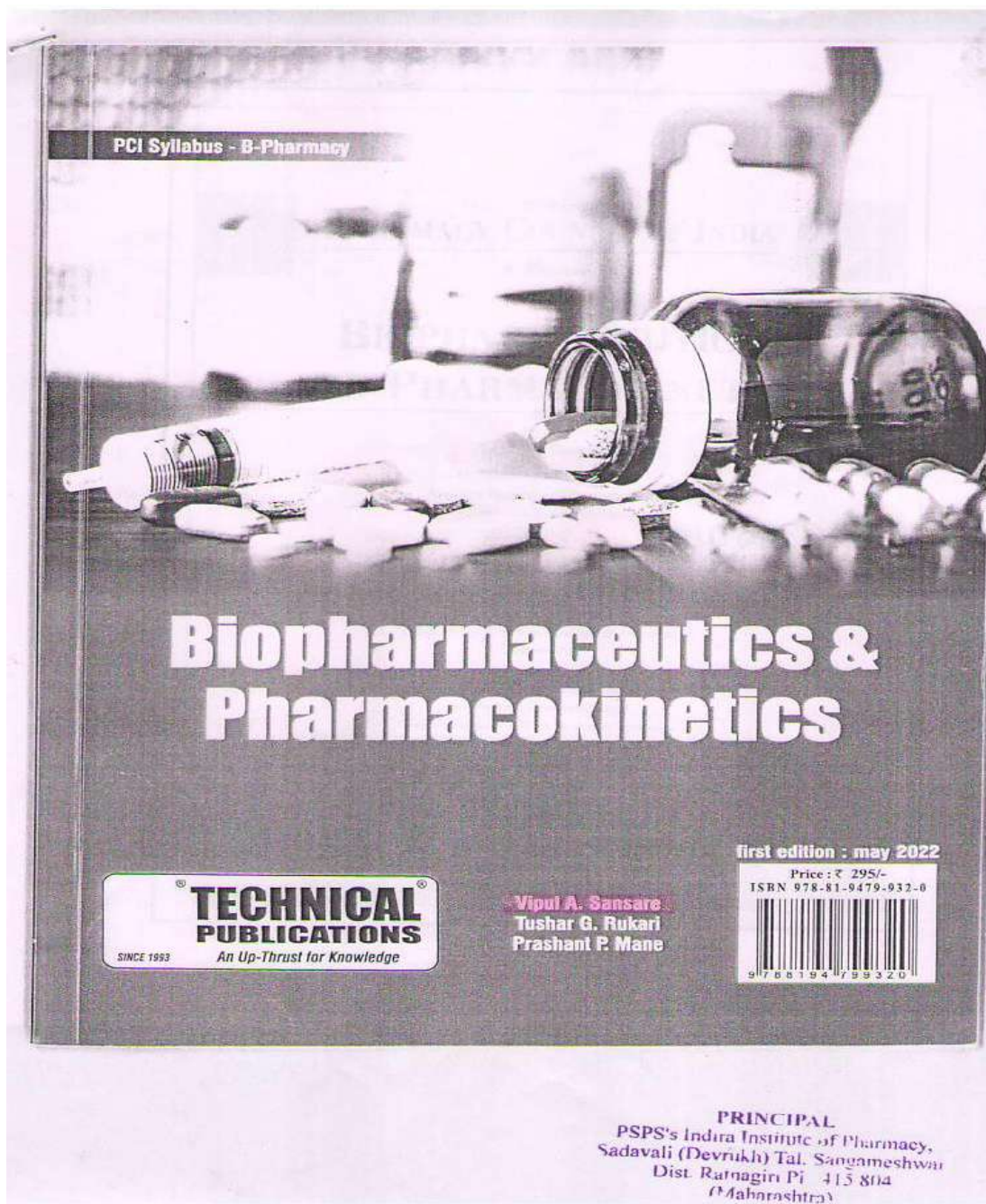
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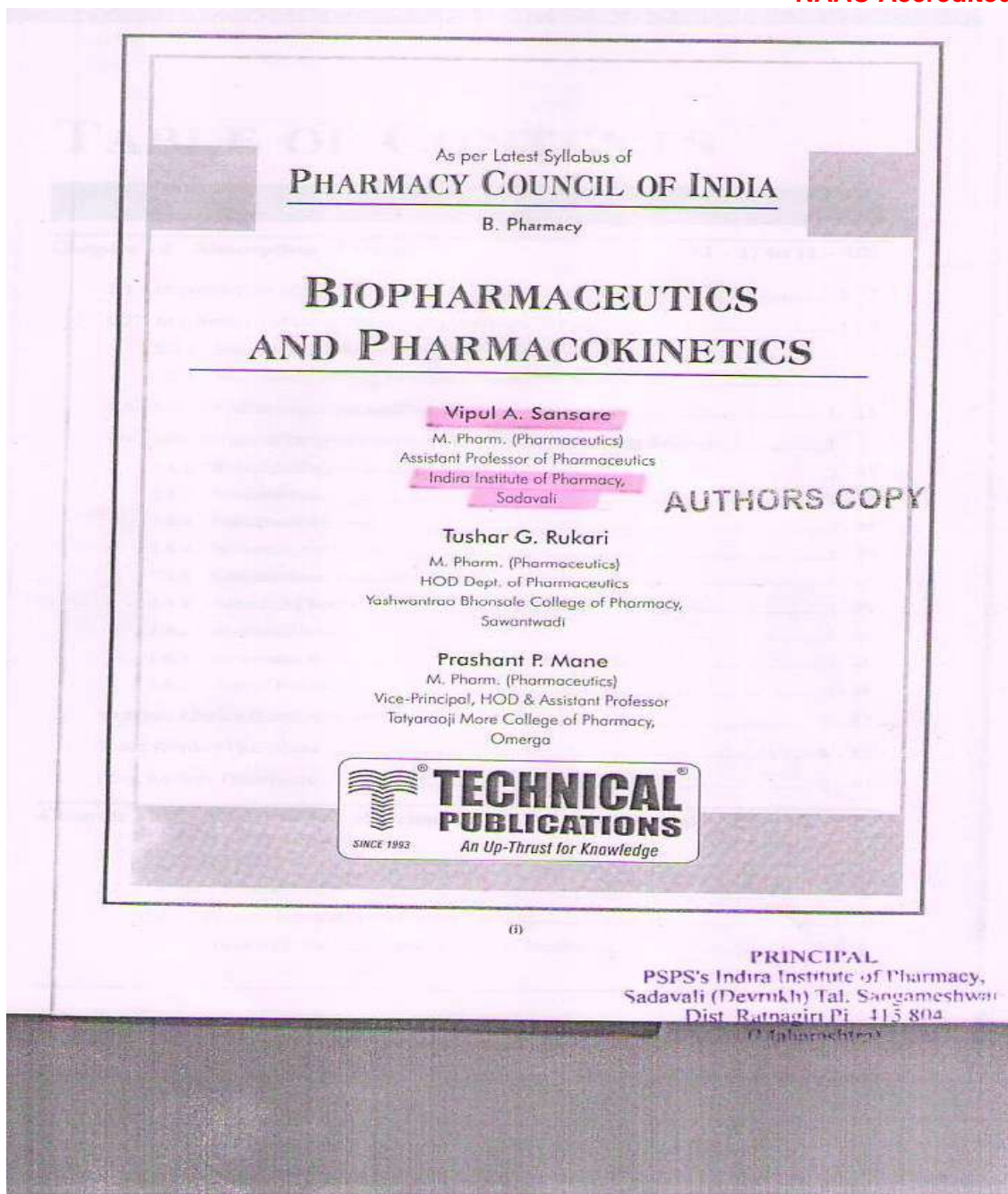
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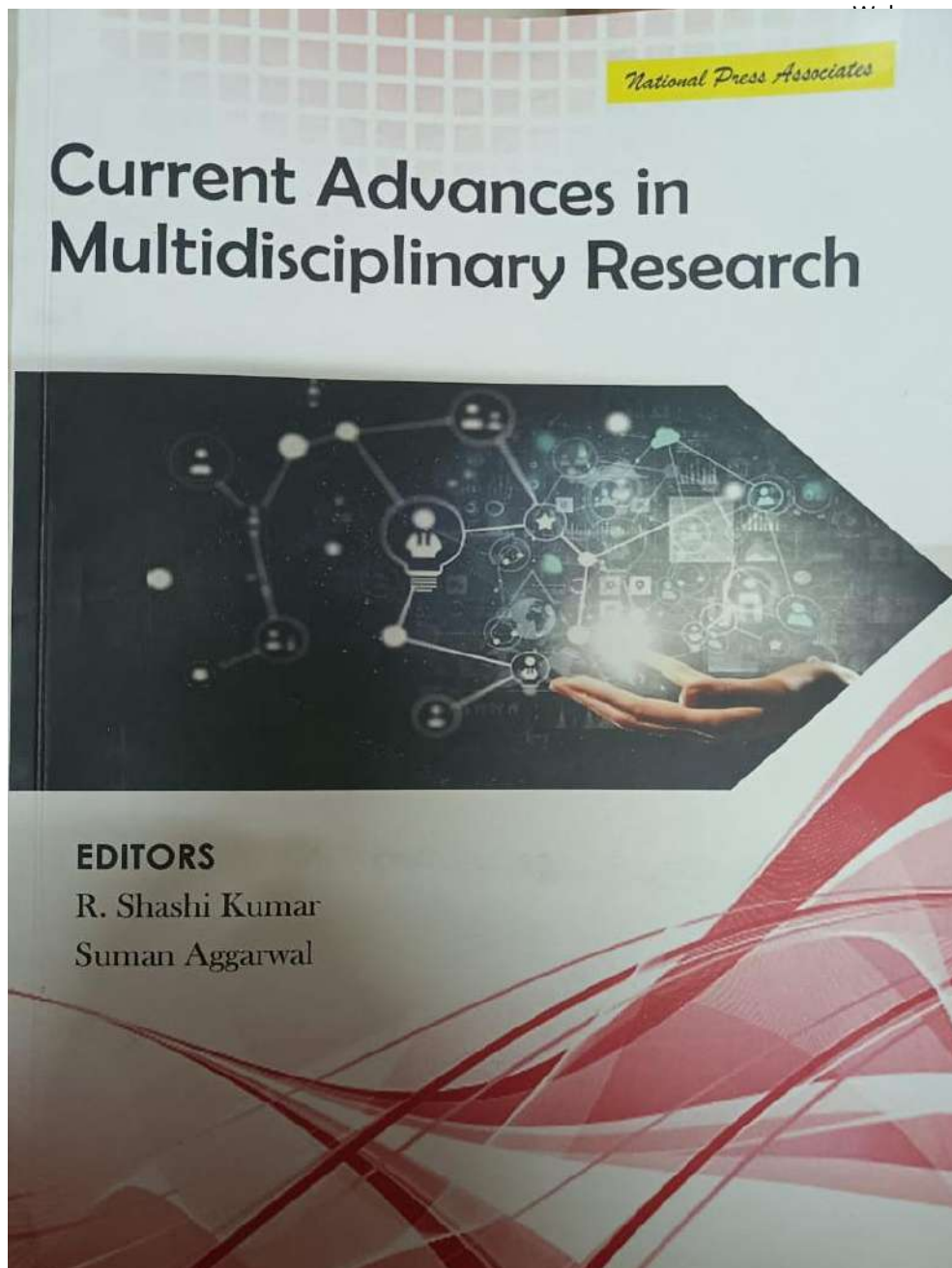
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**LIQUISOLID COMPACT: AN APPROACH TO ENHANCE  
DISSOLUTION RATE OF DRUGS**

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**ABSTRACT**

The dissolution rate improvements of poorly water-soluble drugs is major challenge for the pharmaceutical industry because of their low solubility. Due to different novel technology, the number of candidate increased. In that most of the drugs have highly lipophilic in nature. These drugs are belongs to BCS (Biopharmaceutical classification system) class II and class IV. Bioavailability of poorly water soluble drugs is limited by their solubility and dissolution rate. To counter these problems different technologies come in the market but they also have many disadvantages. The liquisolid technology as described by Spireas is a liquid which is transformed into a free flowing, readily compressible and apparently dry powder by simple physical blending with selected excipients like the carrier and coating material. This review is mainly based on the history, advantages, disadvantages, theory, mechanism, evaluation and materials used in the liquisolid system. According to literature review the liquisolid compact have greater applicability in the pharmaceutical formulation. The liquisolid compacts approaches the great improvement in the solubility of chemical entity.

**Keywords:** Liquisolid compacts, Solubility, Bioavailability, Carrier material, Coating material

**INTRODUCTION**

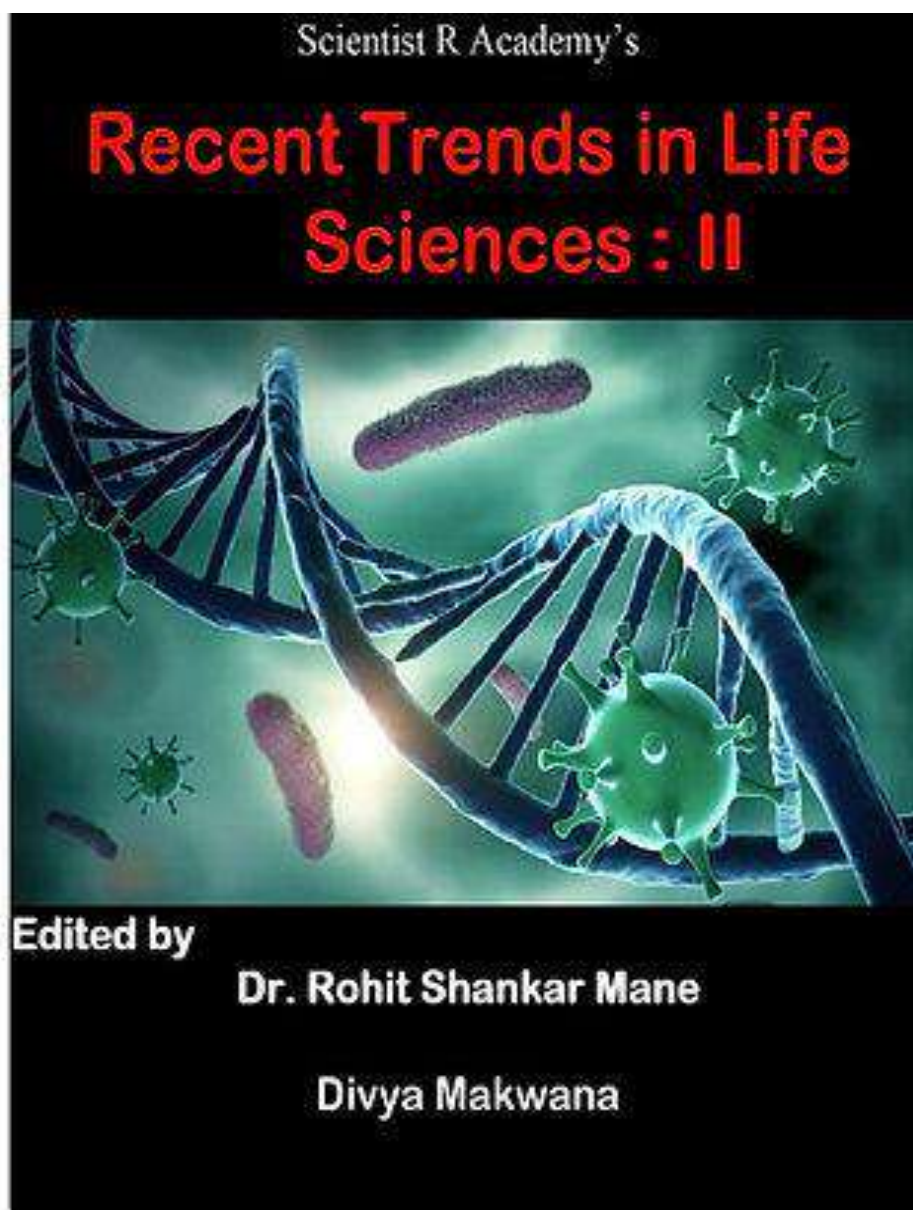
In the pharmaceutical industry oral dosage form is very easy as compared to other dosage forms. The oral dosage forms is convenient for patient also it does not require sophisticated machinery and complex manufacturing procedure, but the major problem of oral dosage form that they should have high solubility. The characteristics of new chemical entity shifted toward higher molecular weight, this increases the lipophilicity therefore it decreases their aqueous solubility. It has been reported that about 40% of the drug in the development stage and 60% of synthesized drugs have poor water solubility.<sup>1</sup> The BCS class II and IV drug i.e. low soluble or insoluble drug in aqueous medium are very challenging to the pharmaceutical industry. Solubility is one of the major factor to achieve desired concentration of drug in the blood stream for pharmacological response.<sup>2</sup> the aqueous solubility of poorly water soluble drug usually less than 100µg/ml.<sup>3</sup> The low solubility of drug cause different problem like low bioavailability, alter the release of dosage form. There are different modifications to tackle this issue i.e. chemical modification, physical modification but they are not cost effective due to the involvement of sophisticated machinery, advanced manufacturing techniques and more complex technology also sometimes leads to unsatisfactory results and lack of stability. In past few years different new techniques have been developed such as drug microionization, solid dispersion, co-precipitation, lyophilization, liposomes, niosomes, microencapsulation, use of prodrug and derivatization process and inclusion of drug solution into soft gelatin capsule.<sup>4</sup>

The most promising technique for the enhancement of water insoluble drug is "liquisolid technique". It was developed by Spireas et. al. 2002 which improve dissolution properties of water insoluble or poorly soluble drugs by increasing surface area and wetting area. The liquisolid technique is based upon the dissolving insoluble drug in the non-volatile solvent and admixture of drug loaded solutions with appropriate carrier and coating material to convert into acceptably flowability and compressibility to the powder.<sup>4</sup> The using liquisolid technique a liquid medication converted into a dry looking non-adherent free flowing and readily compressible powder by a simple blending with selected powder excipients referred to as the carrier and coating material.<sup>5</sup> Apart from dissolution enhancement, liquisolid technique has recently been investigated as a tool to retard drug



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**IMPACT OF ETHNOBOTANY IN DRUG DEVELOPMENT**

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**ABSTRACT**

Ethnobotany is one of the streams which have become a greatest tool in search of new natural medicinal valued pharmaceuticals. This book chapter is a review of number of Ethnobotany, drug development texts and papers in order to understand the approaches and impact of ethnobotany in drug development and to understand the challenges coming across the drug development while ethnobotanical studies. The indigenous natural medicinal plants represent a promising source of various therapeutic effective components that could help fill up the bridge of drug development. However, due to overexploitation of wild harvested resources have led to degradation of medicinally valued plants and make such species to be endangered and extinct. Some of the data in this chapter is accumulated in order to identify, evaluate medicinal values of the indigenous medicinal plants for drug development. There is a need to aware the globe about the knowledge of indigenous medicinal whose impact is the greatest tool in the drug development.

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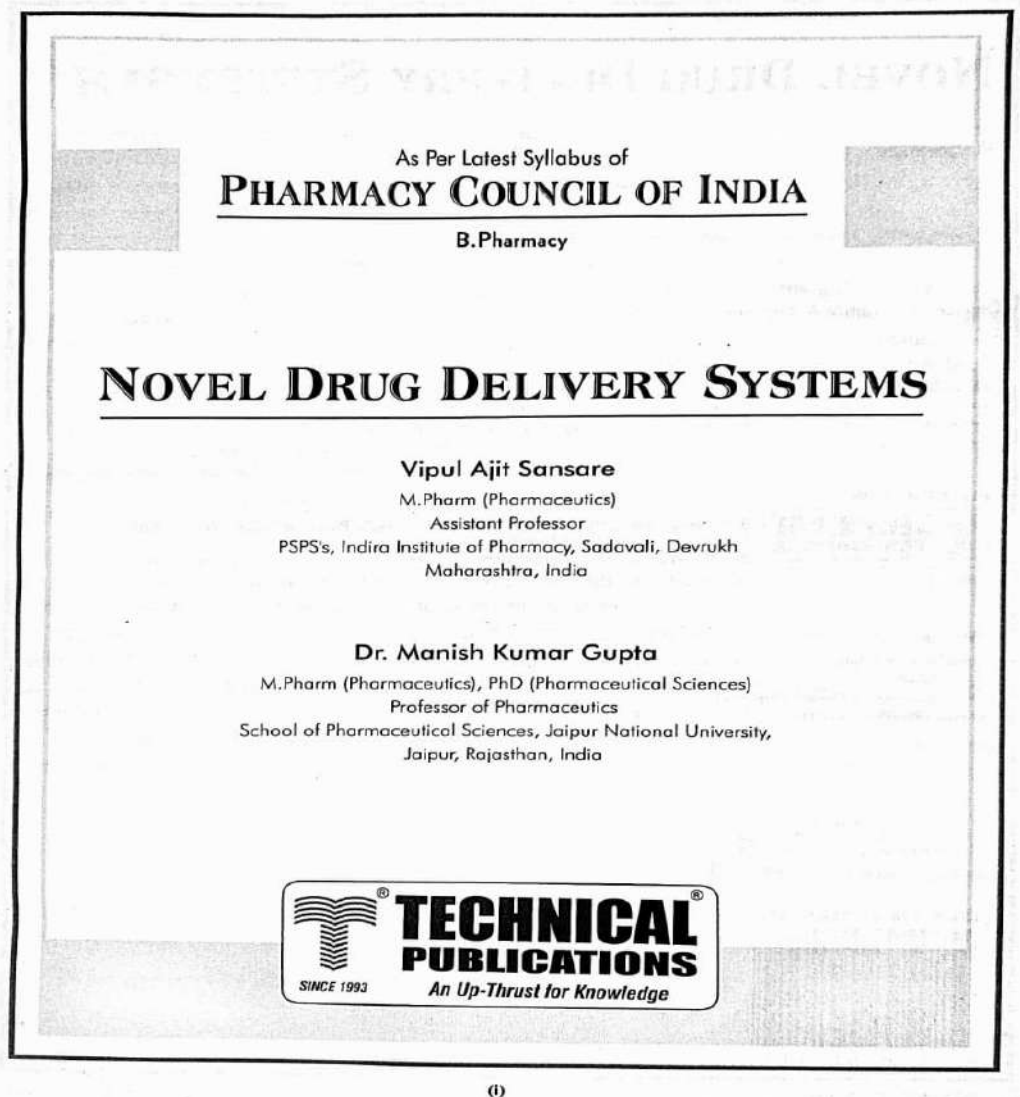
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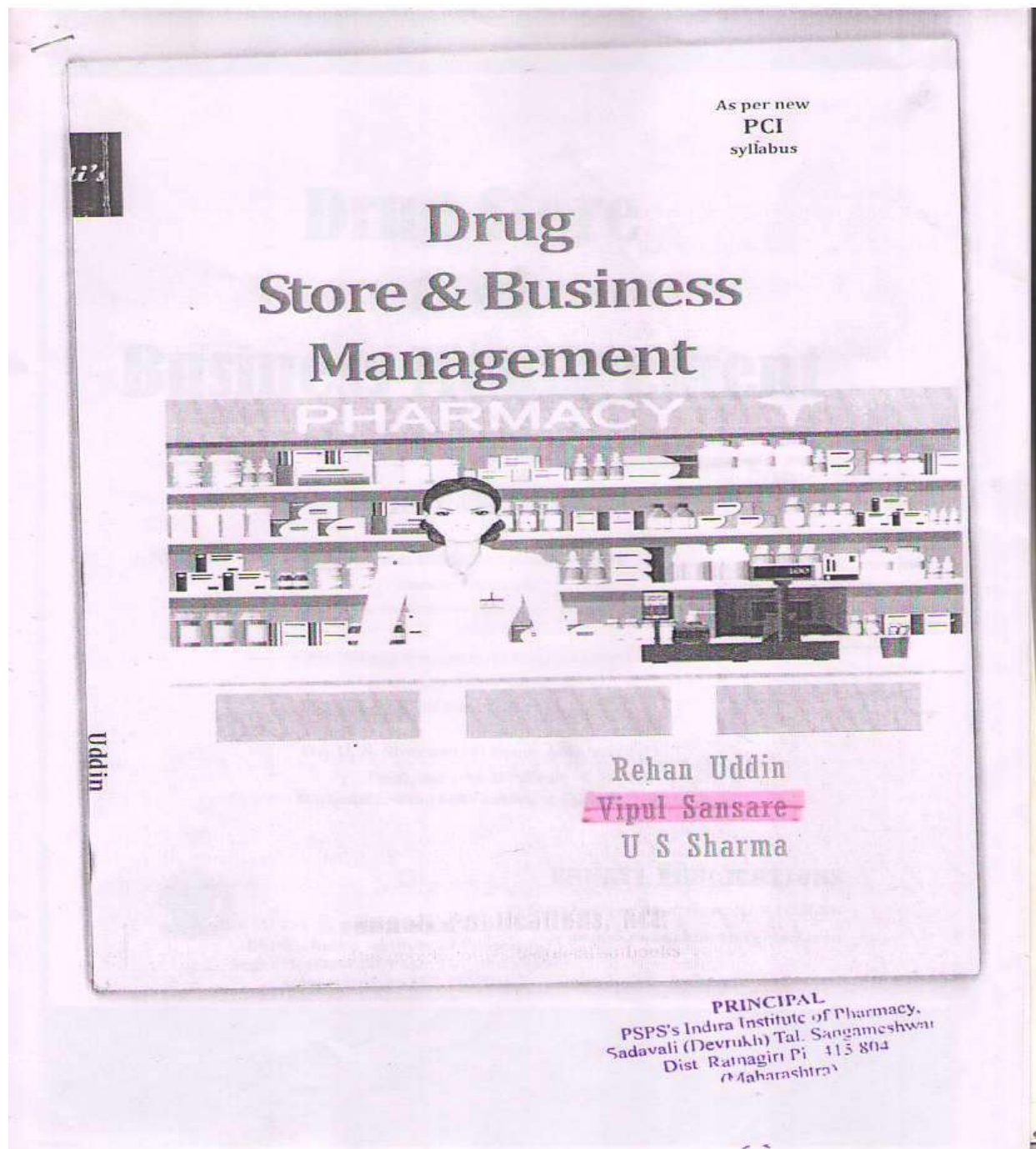
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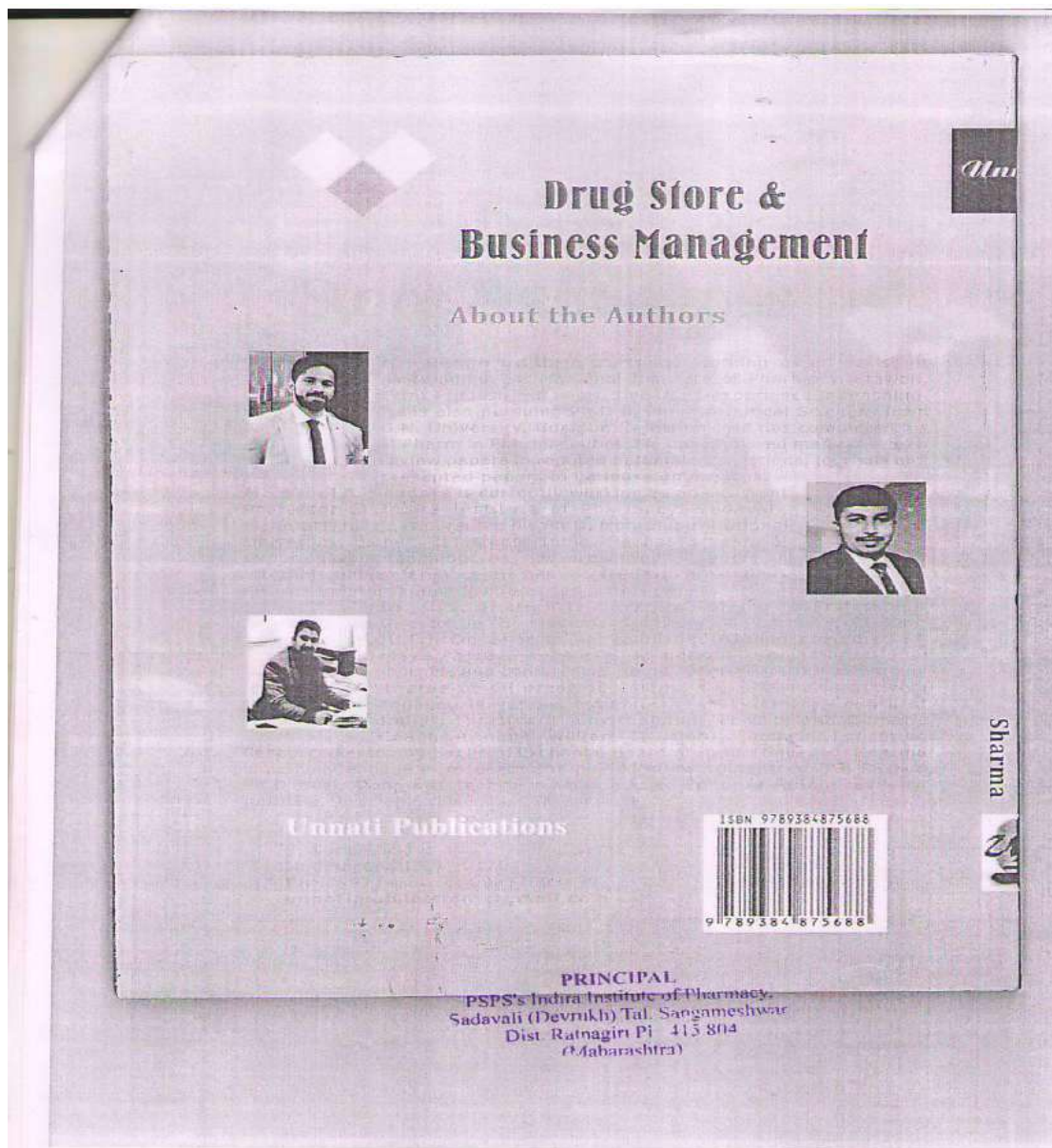
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# Drug Store and Business Management

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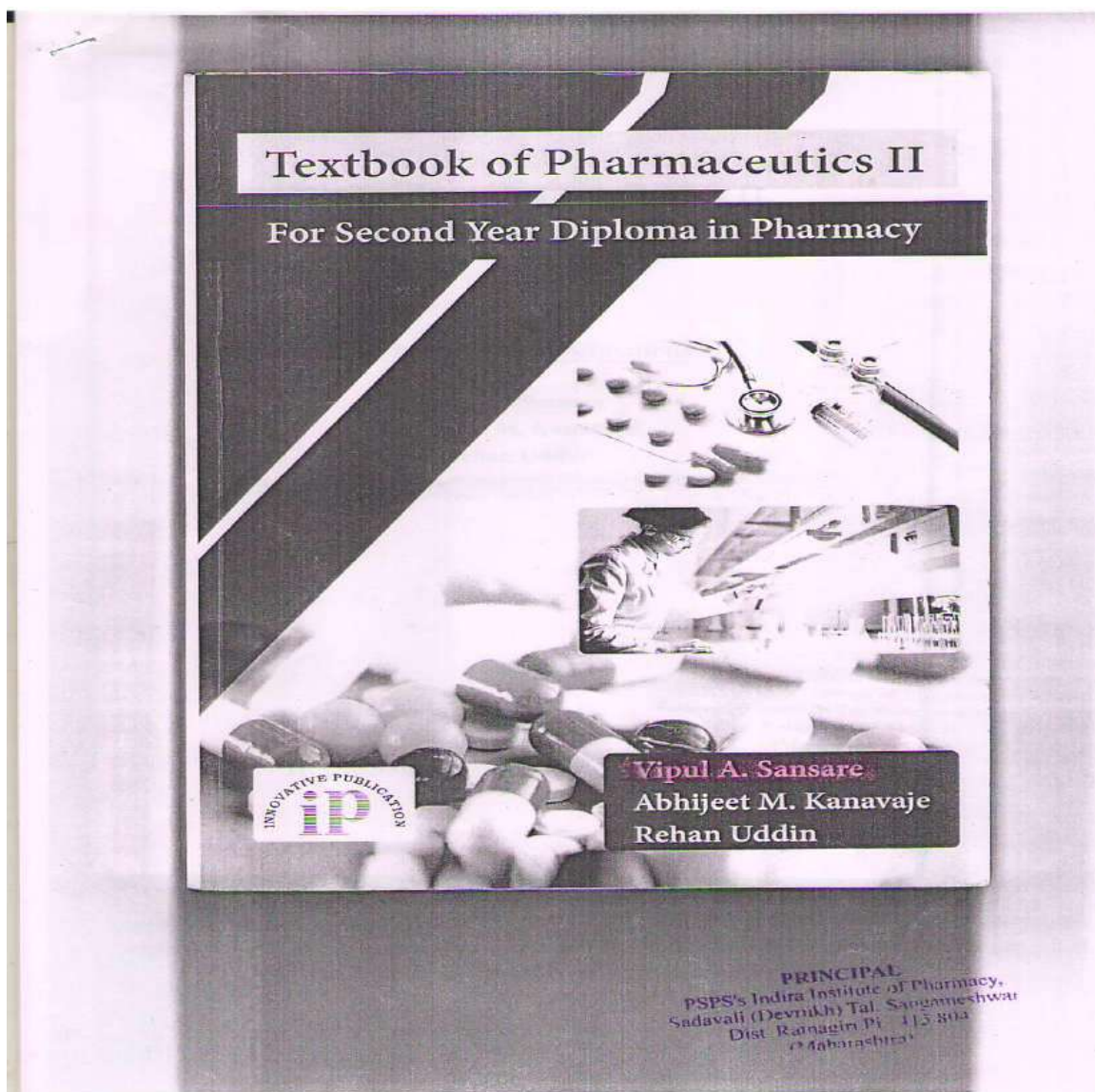
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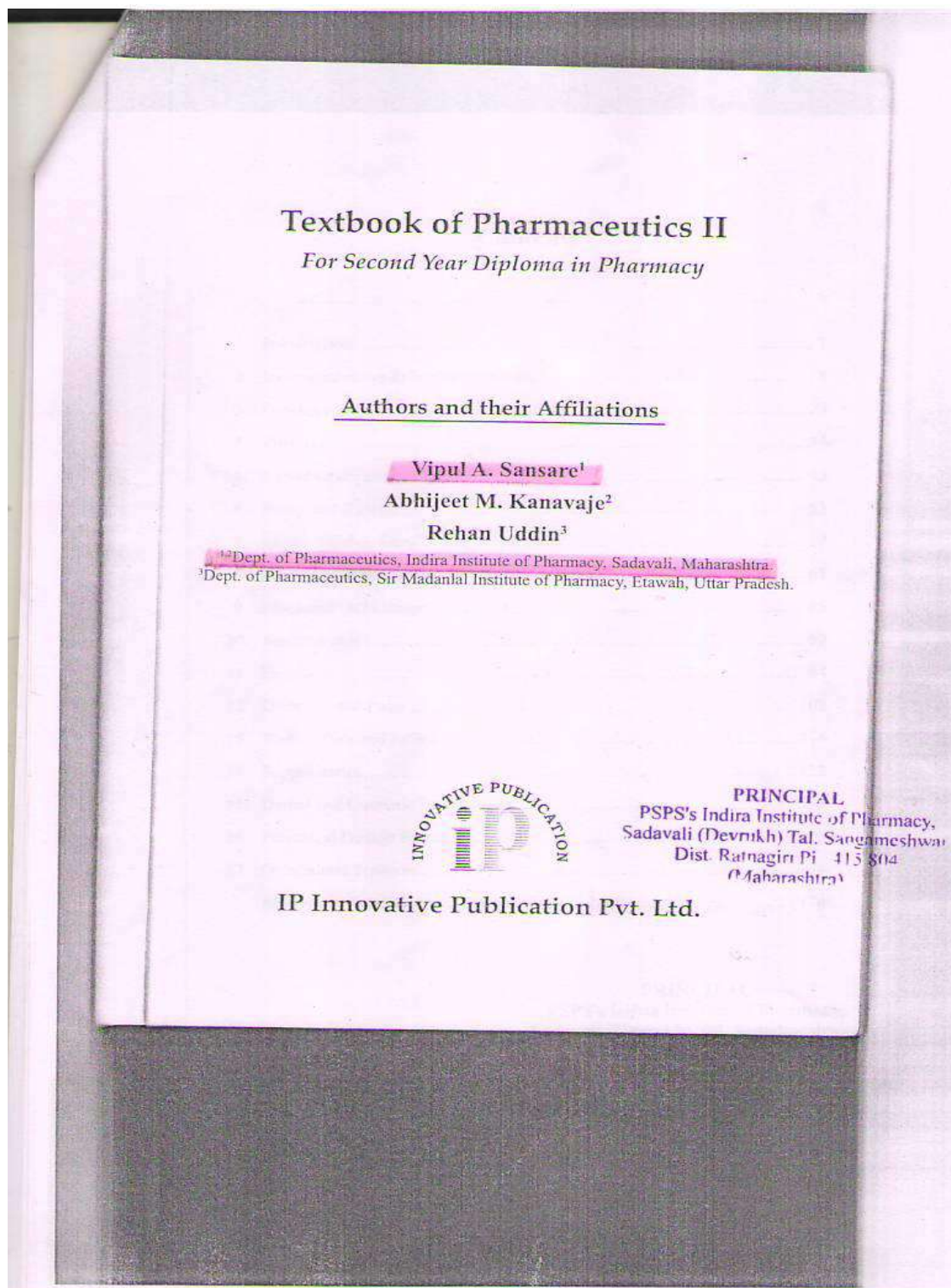
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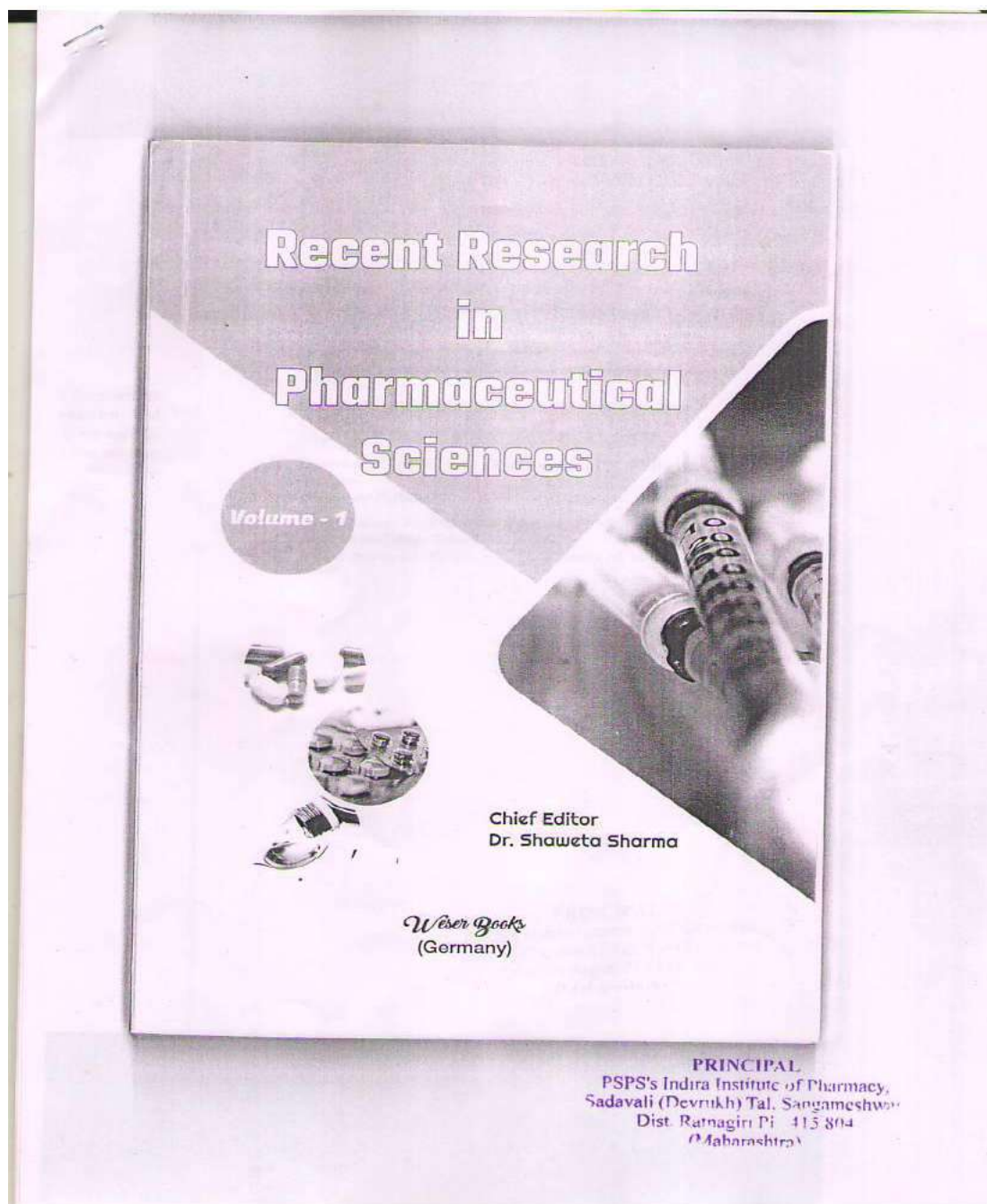
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## Chapter - 2

### Recent Advances in Phytoactive Delivery

Vijul A. Sansare, Manish Kumar Gupta, Deepa U. Warriar and Prashant Gurav

#### Abstract

Plant derived phytoconstituents are well known for their therapeutic potential. It has been experimentally demonstrated that whole plant extract or isolated phytoconstituents reveal various therapeutic potentials like hepatoprotective, antimicrobial, neuroprotective, antitumor, antioxidant, skin protectives etc. Although these phytoconstituents have potential therapeutic benefits, their use is limited due to their poor bioavailability, stability in biological fluids and authentication issues. These continue to be an open problem that affects application of these valuable ancient herbal herbs in effective treatment and management of various disease conditions. A potential solution to these difficult problems could be encapsulation of phytoactives in novel colloidal particulate systems. Novel colloidal carriers like liposomes, phytosomes, proniosomes, niosomes, nanoparticles, microspheres, lipid microparticles, ethosomes as well as transfersomes were effectively utilized recently to solve drawbacks and for effective delivery of phytoactives. Several landmark studies observed better therapeutic efficacy of phytoactive loaded colloidal carrier compared to conventional drug delivery. Thus colloidal carrier based phytoactive delivery is recently developed promising and attractive strategy for better therapeutic control on disease conditions. The present exhaustive review highlights recent advances in herbal bioactives loaded colloidal carrier-based drug delivery systems.

**Keywords:** plant extracts, phytoactives, phytopharmaceuticals, novel drug delivery systems, colloidal carriers

#### Introduction

Plant extract has been used worldwide for treatment of various diseases as well as accepted by physicians and patients because of their fewer side effects<sup>(1)</sup>. Therapeutic potentials of herbs are widely reported and greatly explored in the literature by ancient Indians. Plant derived phytoconstituent based drug delivery systems are becoming more popular in the modern

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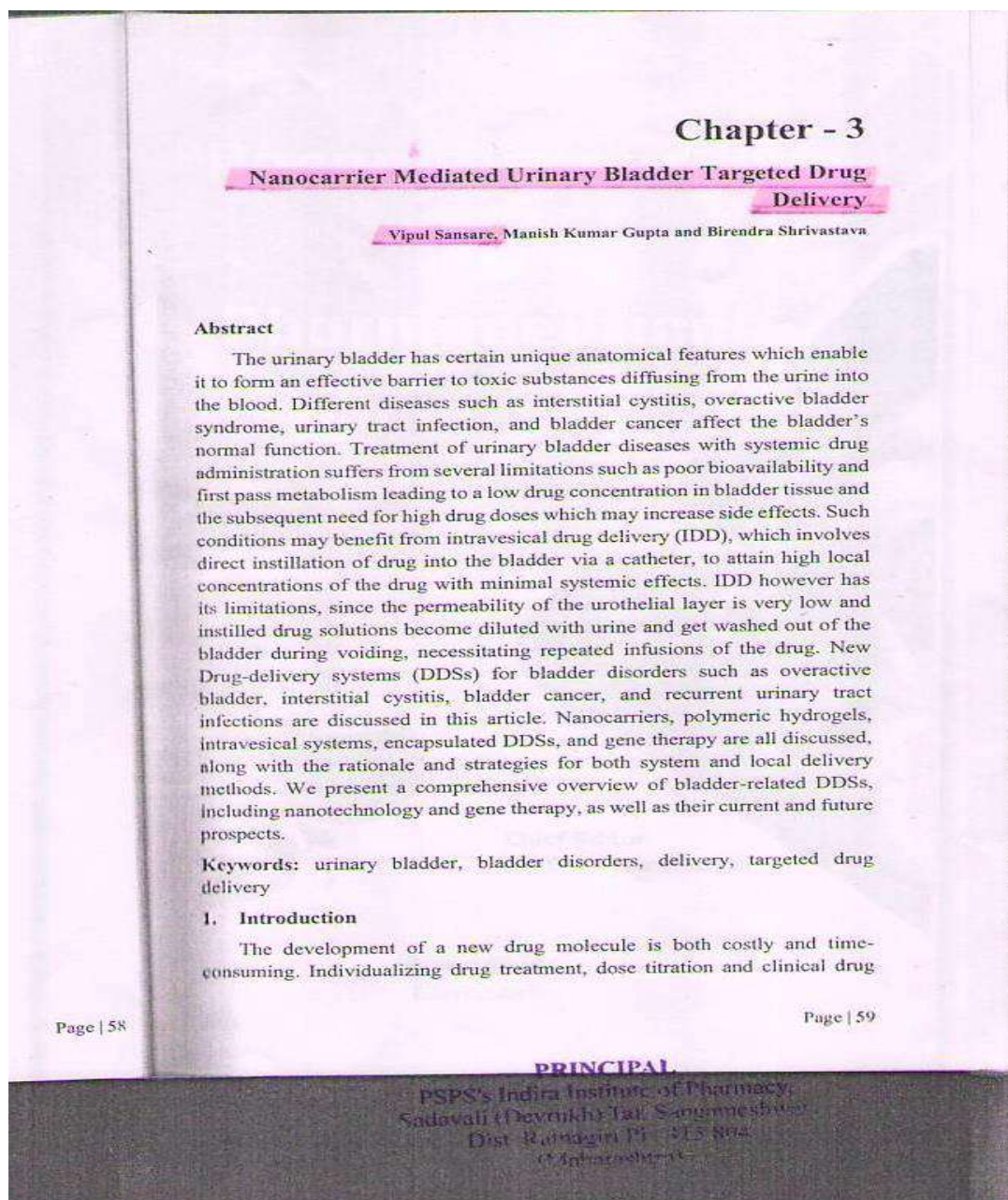
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## Chapter - 3

### Nanocarrier Mediated Urinary Bladder Targeted Drug Delivery

Vipul Sansare, Manish Kumar Gupta and Birendra Shrivastava

#### Abstract

The urinary bladder has certain unique anatomical features which enable it to form an effective barrier to toxic substances diffusing from the urine into the blood. Different diseases such as interstitial cystitis, overactive bladder syndrome, urinary tract infection, and bladder cancer affect the bladder's normal function. Treatment of urinary bladder diseases with systemic drug administration suffers from several limitations such as poor bioavailability and first pass metabolism leading to a low drug concentration in bladder tissue and the subsequent need for high drug doses which may increase side effects. Such conditions may benefit from intravesical drug delivery (IDD), which involves direct instillation of drug into the bladder via a catheter, to attain high local concentrations of the drug with minimal systemic effects. IDD however has its limitations, since the permeability of the urothelial layer is very low and instilled drug solutions become diluted with urine and get washed out of the bladder during voiding, necessitating repeated infusions of the drug. New Drug-delivery systems (DDSs) for bladder disorders such as overactive bladder, interstitial cystitis, bladder cancer, and recurrent urinary tract infections are discussed in this article. Nanocarriers, polymeric hydrogels, intravesical systems, encapsulated DDSs, and gene therapy are all discussed, along with the rationale and strategies for both system and local delivery methods. We present a comprehensive overview of bladder-related DDSs, including nanotechnology and gene therapy, as well as their current and future prospects.

**Keywords:** urinary bladder, bladder disorders, delivery, targeted drug delivery

#### 1. Introduction

The development of a new drug molecule is both costly and time-consuming. Individualizing drug treatment, dose titration and clinical drug

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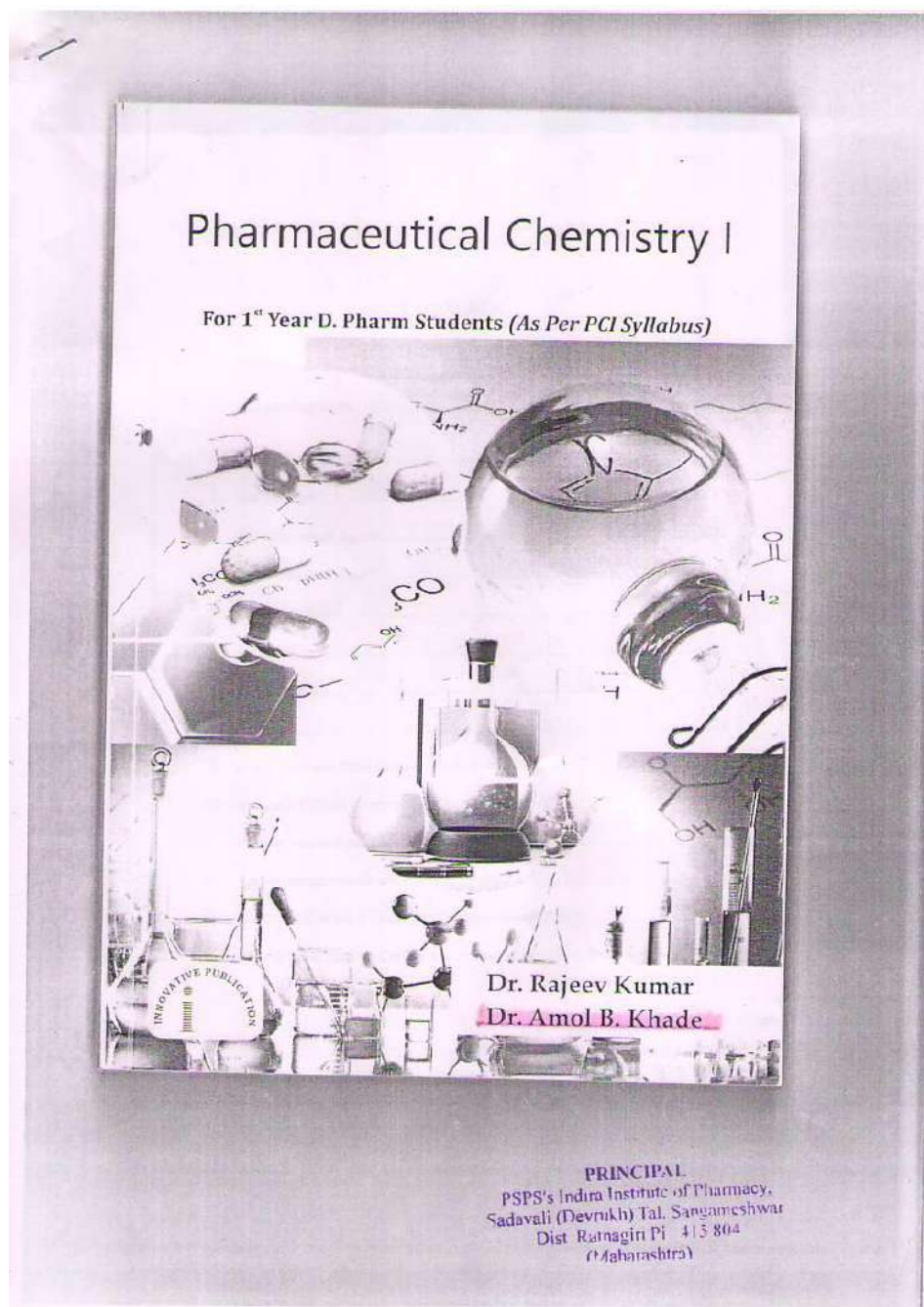
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### Pharmaceutical Chemistry I

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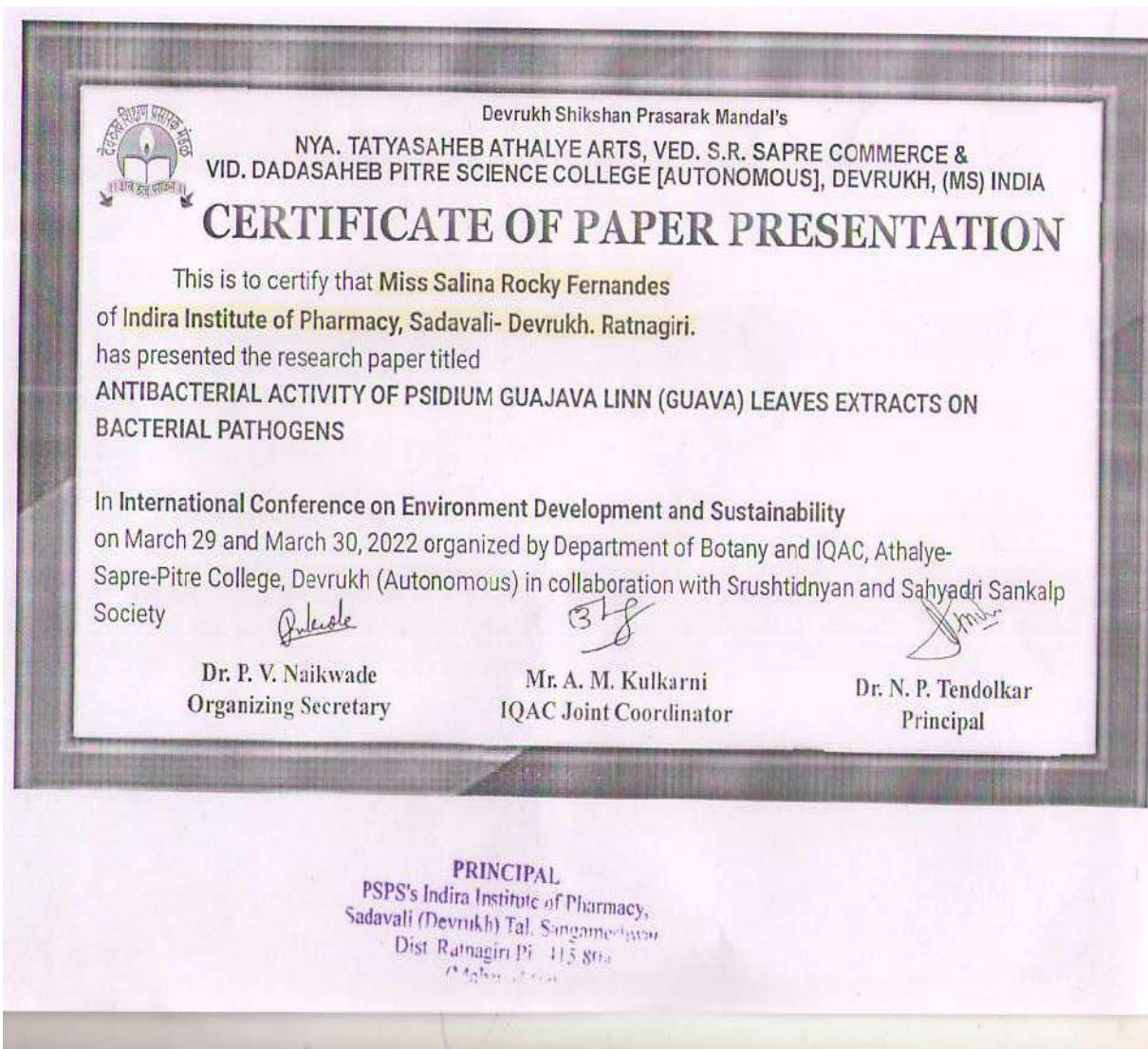
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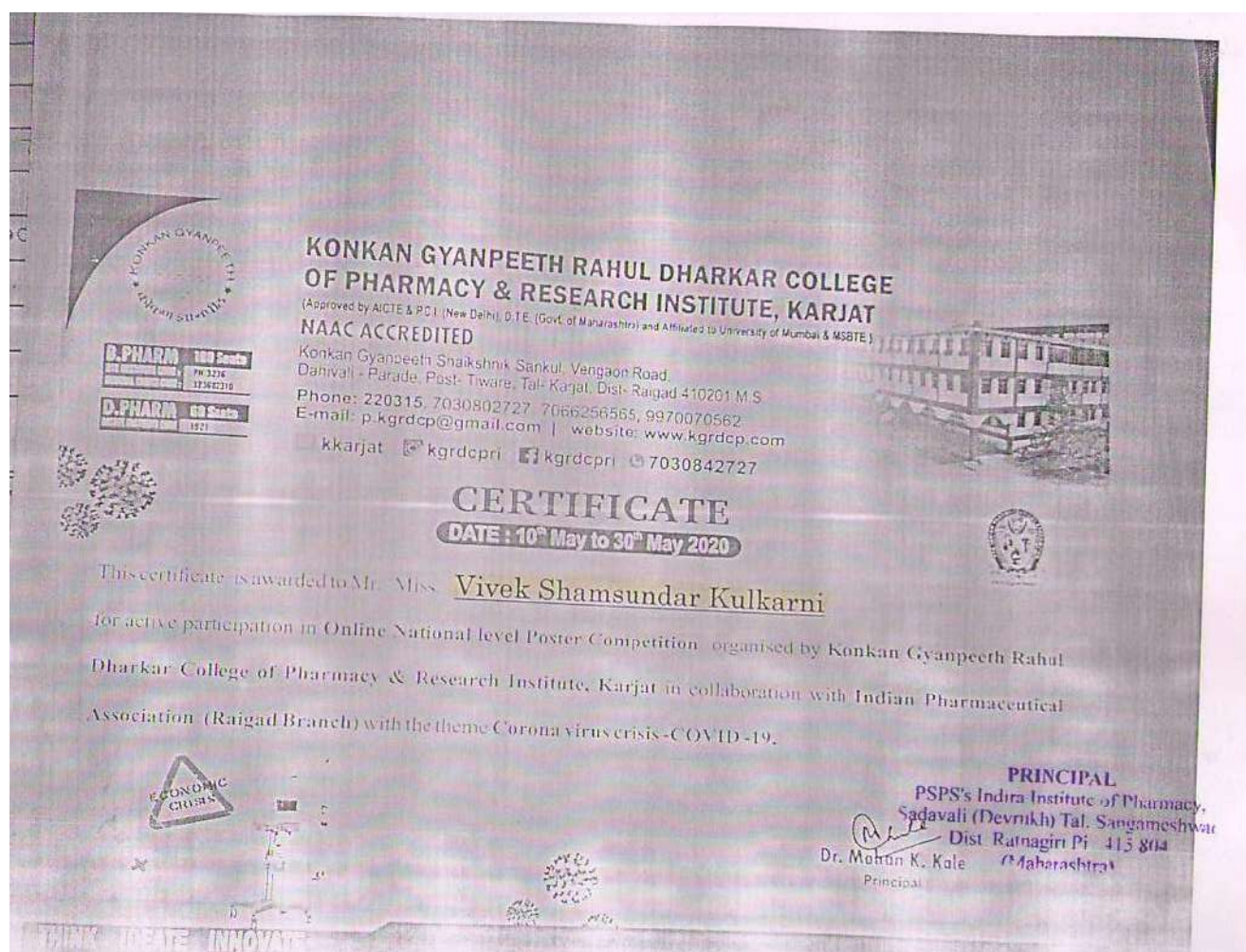
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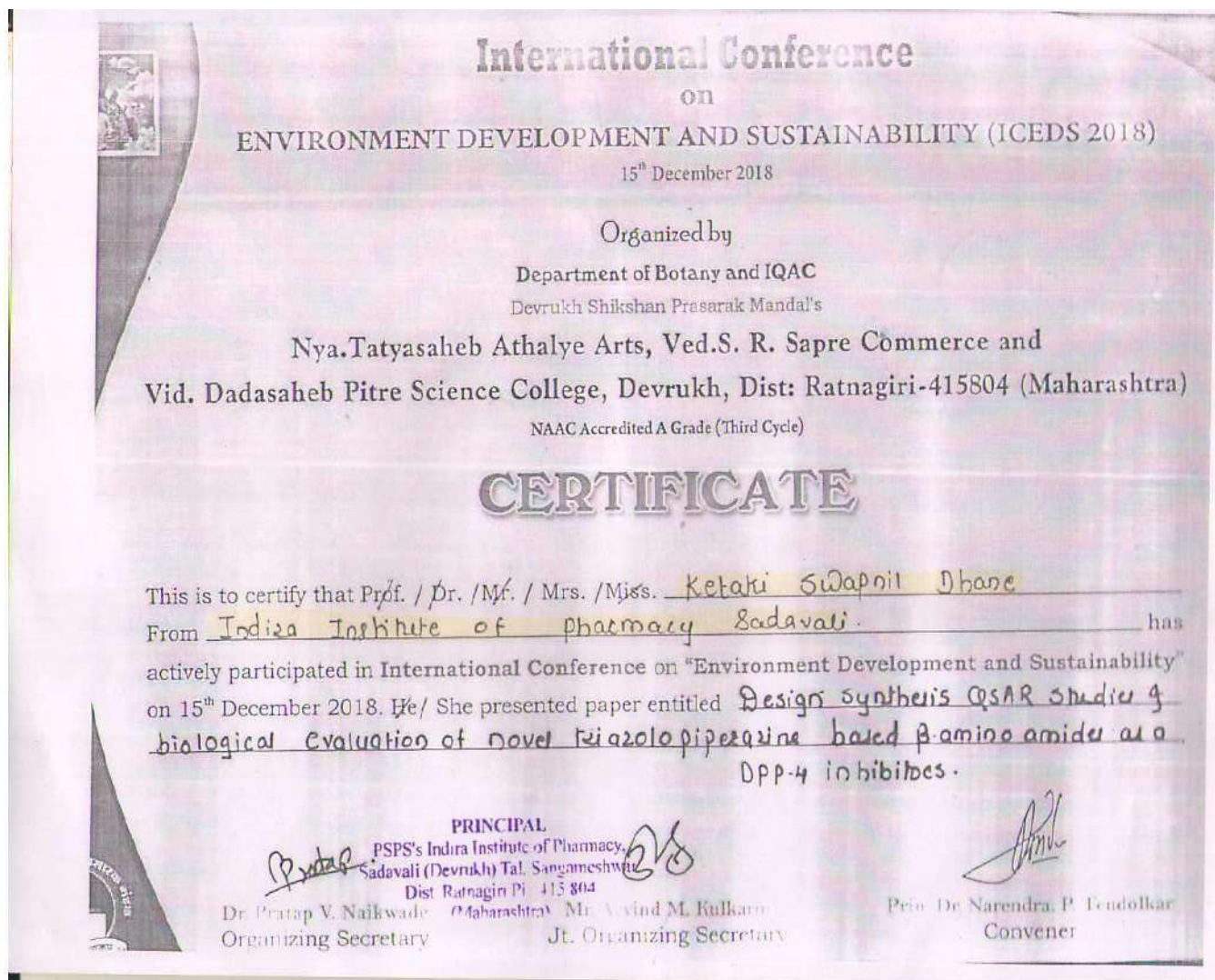






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