MARCH 2002

[KG 312]

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch VIII — Phytopharmacy and Phytomedicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours Maximum : 100 marks

Answer ALL Four questions.

All questions carry equal marks.

1. Discuss in detail the importance and various methods used for the drying and processing of medicinal herbs. (25)

2. (a) Describe the methods used for qualitative and quantitative estimation of herbal raw materials. (13)

(b) Write an essay on extraction methods and the solvents used for extraction. (12)

3. (a) Giving any one example of a herbal extract, discuss its production on a pilot scale. (13)

(b) Describe the pharmacological methods employed for the standardisation of herbal extracts. (12)

4. Write notes on : (25)

(a) Standardised extracts of Hypericum perforatum

(b) Seasonal variation of Phytoconstituents

(c) Spectral analysis of herbal extracts

(d) Standardisation of saponin containing herbal drugs.

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APRIL 2003

[KI 312] **Sub. Code : 1032**

(For candidates admitted from 2001–2002 onwards)

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch VIII — Phyto Pharmacy and Phyto medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. (a) Prepare a scheme for the standardization of crude drug extracts. (13)

(b) What are the problems associated with cold extraction process? (12)

2. (a) What is processing? Briefly describe different methods of it. (13)

(b) What are the suitable packing materials which can be used for herbal extracts? (12)

3. What are the stipulated requirements of GMP in Drugs and Cosmetics Act and Rules? (25)

4. Write short notes on :

(a) Toxicity studies of herbal extracts.

(b) Stability listing of herbal extracts.

(c) Moist heat sterilization.

(d) Karl–Fischer Titration. (25)

OCTOBER 2003

[KJ 312] **Sub. Code : 1032**

(For candidates admitted from 2001–2002 onwards)

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours Maximum : 100 marks

Answer All FOUR questions.

All questions carry equal marks.

1. (a) What is super critical fluid extraction? What are its merits and demerits? (13)

(b) What is Freeze Drying? Is it suitable for the preparation of herbal drug concentrates? (12)

2. (a) What are the methods of standardisation of herbal drug extracts? (13)

(b) Briefly explain the importance of spectral analysis in the elucidation of structure of steroids of natural importance. (12)

3. (a) What are the different methods of processing? (13)

(b) What are the labelling requirements for herbal extracts, herbal cosmetics etc according to the existing rules? (12)

4. Write short notes on :

(a) Packing materials that can be used in herbal drug industry (6)

(b) Seasonal variation of phytopharmaceuticals (7)

(c) Soxhlet extraction (6)

(d) Quantification of active principles. (6)

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APRIL 2004

[KK 312] **Sub. Code : 1032**

(For candidates admitted from 2001–2002 onwards)

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours Maximum : 100 marks

Sec. A & B : Two hours and Forty minutes Sec. A & B : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

SECTION A — (2 × 15 = 30 marks)

(Long Essay)

1. Write an essay on standardisation of extracts covering Spectral–Analysis, quantification of active principles and stability test for extracts. (15)

2. Give an account of industrial methods of preparation of standardized extracts. (15)

SECTION B — (10 × 5 = 50 marks)

Write notes on :

3. Authetication of a herb. (5)

4. Stability tests for extracts. (5)

5. Physical method of standardisation. (5)

6. Purification of solvents. (5)

7. Preparation of garcinea extract. (5)

8. Toxicological standardisation of a prepared extract. (5)

9. Preparation of turmeric extract. (5)

10. Importance of processing. (5)

11. Cold extraction. (5)

12. Chemical method of standardisation. (5)

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AUGUST 2004

[KL 312] **Sub. Code : 1032**

(For candidates admitted from 2001–2002 onwards)

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours Maximum : 100 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

SECTION A — (2 × 15 = 30 marks)

(Long Essay)

1. What do you mean by standardized extract? How standardized extract can be made? What are the microscopical and macroscopic parameters to be evaluated for standardisation of herbal raw material? Discuss the method of preparation of standardized garlic extract. (3 + 4 + 4 + 4)

2. What do you mean by pharmacological standardization? Discuss the procedure for therapeutic evaluation of a phytomedicine with anti-inflammatory potential. What is toxicological standardisation? How this can be made for turmeric extract? (3 + 5 + 3 + 4)

SECTION B — (10 × 5 = 50 marks)

Short notes on :

3. Write the chemical method of standardisation of raw materials.

4. Write notes on Soxhletion.

5. Write any one method of recovery of solvent and their merits and demerits.

6. Write notes on artificial drying.

7. Write briefly about seasonal variation of phyto principles.

8. Write short notes on standardisation in pilot scale production of extracts.

9. Write short notes on acute toxicity of herbal extracts.

10. How can you standardize the hypericum extract for CNS activity?

11. Write short notes on antidiabetic screening of standardized extracts.

12. What are the precautions to be taken for packing and labelling of herbal extracts?

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FEBRUARY 2005

[KM 312] **Sub. Code : 1032**

(For candidates admitted from 2001–2002 onwards)

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours Maximum : 100 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

SECTION A — (2 × 15 = 30 marks)

Long Essay :

1. Write an essay on the influence of seasons on the quantity and quality of phyto principles.

2. Describe the various methods used for the drying of crude drugs.

SECTION B — (10 × 5 = 50 marks)

Short notes :

3. Use of spectral methods for standardization of extracts.

4. Processing of herbal material.

5. Toxicological standardization of extracts.

6. Quality of herbal extracts.

7. Recovery of solvents.

8. Principles of drying.

9. Indian Herbal market.

10. Polyherbal formulations.

11. Stability test for extracts.

12. Karl–fischer titration.

AUGUST 2005

[KN 312] **Sub. Code : 1032**

(For candidates admitted from 2001-2002 onwards)

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

Answer ALL questions.

I. Long Essay : (2 × 15 = 30)

1. Define extraction. Give its principles. Highlight the various methods of extraction. Discuss in detail about hot extraction giving its merits and demerits.

(2 + 5 + 3 + 5)

2. Give a brief account about pharmacological standardisation. Explain in detail about anti-fertility (fertility regulatory agents) screening of extracts.

(5 + 10)

II. Short notes on : (10 × 5 = 50)

1. Spectral analysis for standardisation of extracts. Give few examples. (5)

2. Various factors affecting the phytoprinciples in the herbal drugs. (5)

3. Methods involved in moisture determination. (5)

4. Preparation of extracts of garlic. (5)

5. Explain suitability regarding spray drying herbal extracts. (5)

6. Antiinflamatory screening of phytomedicine. (5)

7. Compare the role of ethanol as an extraction solvent with other solvent. (5)

8. Qualitative analysis of active principles; with three examples. (5)

9. Various tests to be performed for the suitability of packing materials used. (5)

10. Labelling of a polyherbal ointment formulation. (5)

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MARCH 2006

[KO 312] Sub. Code : 1032

(For candidates admitted from 2001-2002 onwards)

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

Answer ALL questions.

I. Long Essay : (2 × 15 = 30)

1. Write in detail about the industrial methods of preparation of standardized extracts.

2. What is freeze drying? Is it suitable for the preparation of herbal drug concentrates?

II. Write short notes : (10 × 5 = 50)

1. Soxhlet extraction.

2. Packing materials that can be used in herbal drug industry.

3. Artificial drying.

4. Preparation of turmeric extract.

5. Antidiabetic screening of standardized extracts.

6. Cold extraction.

7. Purification of solvents.

8. Chemical methods of standardisation.

9. Acute toxicity of herbal extracts.

10. Stability tests for extracts.

MARCH 2007

[KQ 338] **Sub. Code : 2874**

M.Pharm. DEGREE EXAMINATION.

(Regulations 2006)

First Year

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Long Essay : (1 × 20 = 20)

1. Discuss different extraction methods with their merits and demerits.

II. Long Essay : (2 × 15 = 30)

1. Write salient features of Pharmacological and Microbiological screening of herbal extracts.

2. Discuss the GMP for the production of quality Botanicals.

III. Short notes : (6 × 5 = 30)

1. Global Regulatory status for Herbal Drugs.

2. Stability studies of Herbal formulations.

3. Isolation and estimation of Catochins from Green Tea.

4. Toxicity studies of Herbal extracts.

5. Different methods of drying of Herbal drugs.

6. Standardization of a Herbal drug by using HPTLC.

SEPTEMBER 2007

[KR 338] **Sub. Code : 2874**

M.Pharm. DEGREE EXAMINATION.

First Year

(Regulation 2006)

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

Answer ALL questions.

I. Long Essay : (1 × 20 = 20)

(1) Describe in detail the different methods of processing of herbs with major stress on collection, harvesting, packing and storage.

(2) How will you go about in selection of suitable extraction method? Comment upon principles of extraction. (15)

(3) Describe in detail about purification and recovery of solvents. (15)

II. Short notes : (6 × 5 = 30)

(1) Comment upon isolation and estimation of catechias from green tea

(2) Methods of drying - natural and artificial

(3) Standardization of herbal raw materials with examples

(4) Role of HPTLC in herbal drug estimation and analysis

(5) Toxicity studies of herbal extracts

(6) Merits and demerits of supercritical fluid extraction.

September 2008

[KT 338] **Sub. Code : 2874**

M.Pharm. DEGREE EXAMINATION.

First Year

(Regulations 2006)

Branch VIII — Phyto Pharmacy and Phyto Medicine

Paper III — HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Q.P. Code : 262874

Time : Three hours Maximum : 100 marks

Answer ALL questions.

I. Long Essay : (3 × 20 = 60)

1. (a) Describe the importance of HPTLC for qualitative and quantitative estimation of active principles from standardised extracts.

(b) Add a note on catechins from green tea.

2. (a) Describe the methods involved in standardization of herbal raw materials.

(b) Add a note on L-dopa from Mucuna pruriens.

3. (a) Describe the various principles of extraction and selection of suitable extraction methods.

(b) Add a note on piperine from piper nigram and piper longum.

II. Write short notes on : (8 × 5 = 40)

1. Global regulatory status of herbal medicines.

2. Hair care preparations.

3. GMP for the production of Quality botanicals.

4. Evaluation of different herbal dosage forms.

5. Berberine from Berberis and Alicin from Garlic.

6. Highlight the different methods of extraction.

7. Importance of authentification of herbs.

8. Highlight the different methods of processing of herbs.

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March 2009

[KU 338] **Sub. Code: 2874**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

Candidates admitted from 2006-2007 onwards

FIRST YEAR

Branch VIII – PHYTOPHARMACY AND PHYTOMEDICINE

Paper III – HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Q.P. Code : 262874

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. Describe the different methods of extraction and add a note on their merits and demerits.
2. Discuss the various dosage forms in herbal drugs. Explain how you will evaluate them.
3. Discuss the different methods for isolation and estimation of Alicin from garlic.

II. Write Short Notes : **(8 x 5 = 40)**

1. Authentification of herbs.
2. Methods of drying.
3. Super critical fluid extraction.
4. Toxicity studies of herbal extracts.
5. Stability studies of herbal formulations.
6. Good agricultural practices.
7. Incorporating herbal extracts on hair care preparations.
8. Good collection practices of plant materials.

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September 2009

[KV 338] **Sub. Code: 2874**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

Candidates admitted from 2006-2007 onwards

FIRST YEAR

Branch VIII – PHYTOPHARMACY AND PHYTOMEDICINE

Paper III – HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Q.P. Code : 262874

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. a) Write an essay on the protocol for fractionation of a root drug for isolation of various secondary metabolites.
   b) Discuss the principle, merits and demerits of supercritical fluid extraction.

2. a) Discuss the principles of development of fingerprint profile of standardized herbal extracts.
   b) Discuss the OECD guidelines for determination of acute toxicity of plant drugs.

3. a) Explain the principle behind the isolation and estimation of catechine from green tea.
   b) Discuss the isolation and estimation of piperine by HPLC.

II. Write Short Notes : **(8 x 5 = 40)**

1. Documentation requirements in quality control of botanicals.
2. WHO definitions for herbs, herbal materials, herbal preparations, finished herbal products. Therapeutic activity and active ingredients.
3. Herbal shampoos.
4. Isolation of bitter lactones from andrographis.
5. Recovery of solvents from extracts.
6. Merits and demerits of artificial drying.
7. Disc diffusion and serial dilution.
8. Storage requirements for crude drugs.

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March 2010

[KW 338] **Sub. Code: 2874**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

Candidates admitted from 2006-2007 onwards

FIRST YEAR

Branch VIII – PHYTOPHARMACY AND PHYTOMEDICINE

Paper III – HERBAL DRUG DEVELOPMENT AND STANDARDISATION

Q.P. Code : 262874

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. a) Describe the general methods of preparation of plant extracts and their merits and demerits.
   b) Write an essay on the stability studies of herbal formulations.

2. a) Discuss the physicochemical properties of Forskolin and describe its isolation for the source herb.
   b) Outline good agricultural practices with respect to yield enhancement in medicinal plants.

3. a) Enumerate commercially importance herbs of cosmetic significance. Add a note on the methods of their incorporation in cosmetic formulations.
   b) Discuss the quality control protocols for the evaluation of herbal liquids.

II. Write Short Notes : **(8 x 5 = 40)**

1. Procurement and authentications of herbs.
2. Microscopic evaluation of crude drugs.
3. Special analysis of drug extracts.
4. Methods of evaluation of cardiotoxicity.
5. Isolation of bacosides from bacopa.
6. Regulatory requirements for the export of herbal drugs.
7. Quantitative analysis of herbals preparations by HPTLC.
8. Precautions to be taken in the collection of plant materials.

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September 2010

[KX 338] **Sub. Code: 2874**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

(Candidates admitted from 2006-2007 onwards)

FIRST YEAR

Branch VIII – PHYTOPHARMACY AND PHYTOMEDICINE

Paper III – HERBAL DRUG DEVELOPMENT OF STANDARDISATION

Q.P. Code : 262874

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. a) Briefly discuss on GMP for the production of quality botanicals.
   b) Define extraction. Highlight various methods of extraction with merits and demerits.

2. a) Describe the methods involved in standardization of herbal raw materials.
   b) Add a note on L-dopa from Mucuna pruriens.

3. a) Write the methods of purification and solvents utilizing the New Modern methods of technique in industries.
   b) Describe the OECD 423 guidelines for determination of acute toxicity study of Herbal drugs.

II. Write Short Notes : **(8 x 5 = 40)**

1. Standardization of Green Tea.
2. Merits and demerits of methods of Drying.
3. Toxicity studies of herbal extracts.
4. Stability studies of herbal formulation.
5. Preparation of skin care cream and lotion.
6. Regulatory provisions relating to manufacture of cosmetics.
7. Skin sensitivity testing.
8. Hair care preparations.

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