

Herbal Monograph Development in Malaysia

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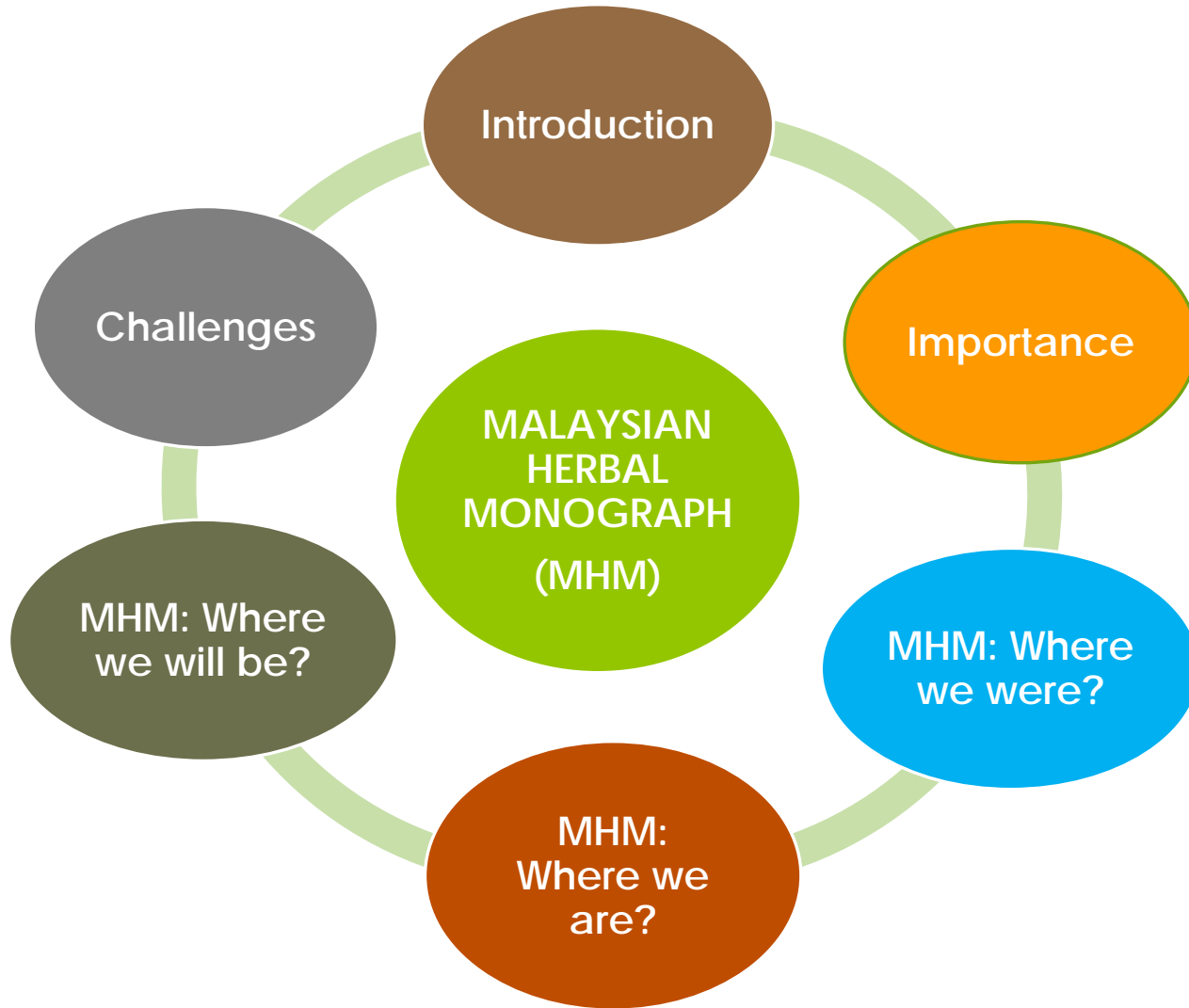
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Overview



Introduction

- Herbal products intended to be produced, imported and sold for human consumption must be registered with Malaysian Ministry of Health to ensure and control the quality, safety and efficacy.
- Production of quality product can promote greater confidence among local and international consumers leading to increase of usage and exportation.
- Legal situation regarding herbal preparations varies from country to country.
- Factors considered in regulatory system for product classification include: description in pharmacopoeia or monograph, prescription status, claim of a therapeutic effect, scheduled or regulated ingredients or substances, or period of use.

Documents

Materia Medica

Monograph

Pharmacopeia

History

- Pedanius Dioscorides. *De Materia Medica* (Regarding Medical Materials), (50-70 A.D).
- Pedanius Dioscorides is a Greek physician and pharmacologist.
- The book - first leading pharmacological text and foremost classical source of modern botanical terminology, focused on "the preparation, properties, and testing of drugs."



History

- Ibn Al-Baitar. “*Kitab al-jami fi al-adwiya al-mufrada*” (The Corpus of Simples anglicanized/Book of Simple Drugs and Food).
- Abu Muhammad Abdallah Ibn Ahmad Ibn al-Baitar Dhiya al-Din al-Malaqi is a Muslim Spanish – botanist, pharmacist and physician of Middle Ages.
- The book comprises some 1,400 different items (medicinal plants and vegetables) with about 300 plants were new (not known earlier).
- The book refers to the work of some 150 authors, mostly Arabs, and it also quotes some early Greek scientists.



List of current documents

- International Documents:
 - WHO Monographs on Selected Medicinal Plants
 - British Pharmacopoeia
 - The United States Pharmacopeia and The National Formulary (USP–NF)
 - The Ayuverdic Pharmacopoeia
 - The Complete German Commission E Monographs
 - Pharmacopoeia of the People's Republic of China
 - The Japanese Pharmacopoeia
 - The Korean Herbal Pharmacopoeia

List of current documents

- ASEAN Documents:
 - Farmakope Indonesia
 - Thai Pharmacopoeia
 - Thai Herbal Pharmacopoeia
 - Vietnamese Pharmacopoeia
 - Myanmar Herbal Pharmacopoeia

- Malaysia Documents:
 - Malaysian Herbal Monograph
 - Compendium of Medicinal Plants Used in Malaysia



Importance of Herbal Monograph

- a written specification that describes:-
 - the principle features of botanical drug
 - information and methods in which these features can be determined; allow proper identification and quality standardization

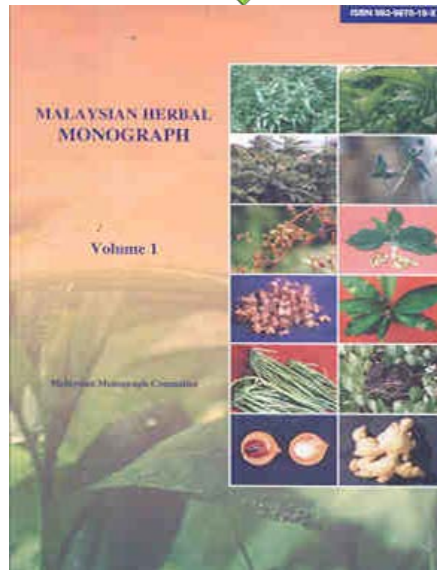
- Malaysian Herbal Monograph (MHM):-
 - monograph of Malaysian medicinal plant that relevant to local species, geographical and environmental conditions

 - document the scientific characteristics and uses of the herbs, with the purpose of ensuring that scientific identification can be made by users and assuring users of the safety aspects and scientific evidence.

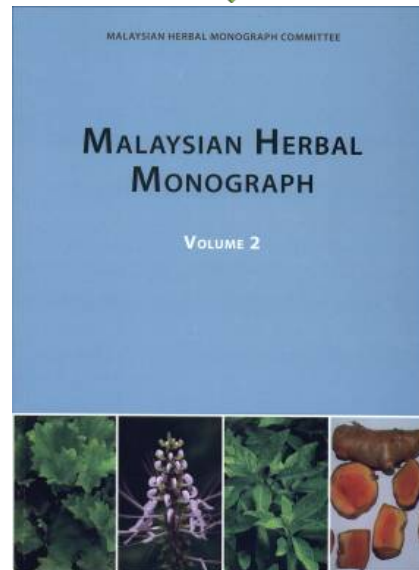
MHM Development

- **Where we were?**
- Where we are?
- Where we will be?

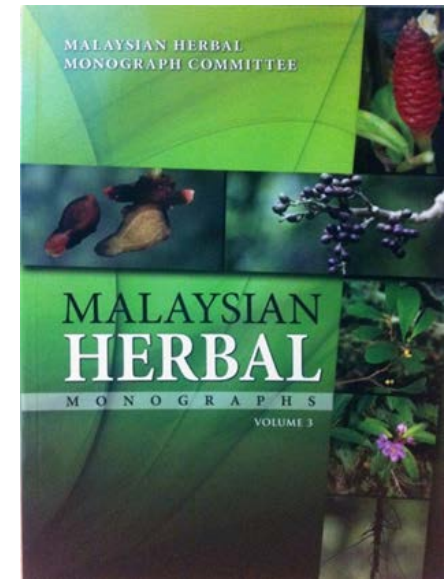
1999



2010



2013



MHM Development

- Where we were?
- **Where we are?**
- Where we will be?

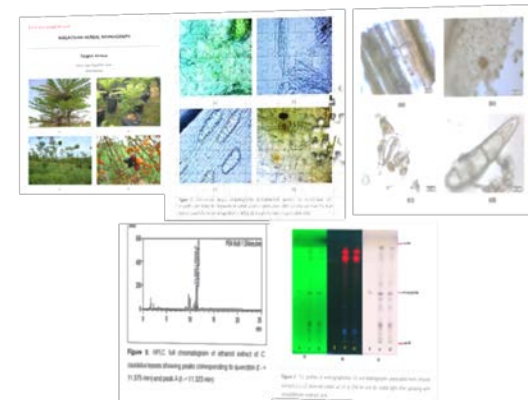
NKEA Malaysian Herbal Monograph

- Background:-

- The development of MHM was identified as one of entry point projects (EPP) under the National Key Economic Area (NKEA) – Ministry of Agriculture & Agro-based Industry.
- Provide proper documentation for raw material authentication, safety and efficacy data of local herbs plants and their product to support the industrial needs in compliance with general international requirement.

- The Herbal Development Division (formerly Herbal Development Office) was established to map the strategic direction, policies and regulations required to spur agriculture industry's growth.
- Effective from 2011 – Malaysian Herbal Monograph was included as one of project under NKEA-Agriculture.
- Monograph Committees consisting of the Technical and Main Committees were established to drive the development of monograph.
- The Monograph Committee is headed by agencies under the Ministry of Health and includes representatives from universities and research institutions.
- Agencies included IMR, BPFK, FRIM, MARDI, UKM, UPM, USM.

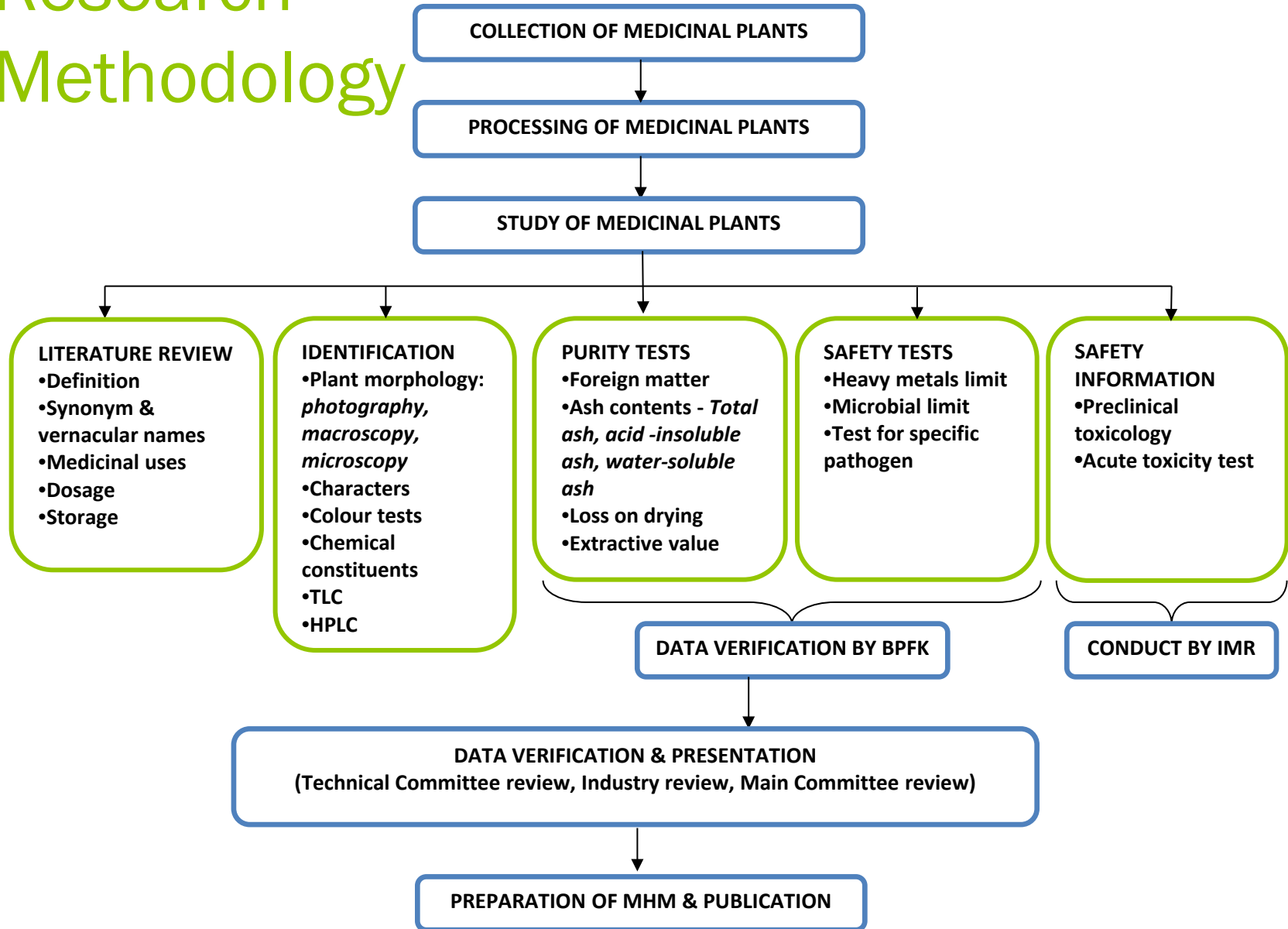
- Objectives of NKEA MHM:-
 - Enable consistency of products for clinical studies
 - Assist formulation of products that meets consumer expectation consistently
 - Assist manufacturer to check validity of ingredients
 - Provide evidence of claims to market regulators



Content NKEA MHM

- 1.0 Definition
- 2.0 Synonym
 - 2.1 Latin name
 - 2.2 Vernacular name
- 3.0 Character
- 4.0 Identification
 - 4.1 Macroscopic
 - 4.2 Microscopic
 - 4.3 Colour test
 - 4.4 TLC
 - 4.5 HPLC
- 5.0 Purity test
 - 5.1 Foreign matter
 - 5.2 Total ash
 - 5.3 Acid insoluble ash
 - 5.4 Loss on drying
 - 5.5 Extractive value
- 6.0 Safety test
 - 6.1 Heavy metals
 - 6.2 Microbial limit
 - 6.3 Test for specific pathogens
- 7.0 Storage
- 8.0 Uses
 - 8.1 Uses described in folk medicine, not supported by experimental or clinical data
 - 8.2 Biological activity supported by respective study
- 9.0 Dosage
- 10.0 Chemical constituents
- 11.0 Safety information
 - 10.1 Toxicology Study
 - 10.2 Others (Adverse reaction, contraindication, side effect, warning, pre caution)
- 12.0 References

Research Methodology



Flowchart Process of NKEA Monograph



UPM
UNIVERSITI PUTRA MALAYSIA
BENTENG BUKIT



UNIVERSITI
KEBANGSAAN
MALAYSIA
National University of Malaysia

Literature review
Write-up
Raw material sourcing
Plant identification
Experimental studies

Verification of analytical data and chromatographic analysis



Safety study of herbal material using *in vivo* toxicology study model conducted in GLP certified facility



Technical Committee Review
Industry Review
Main Committee Review
Publication



MHM Development

		MHM Vol. I & Vol. II	MHM Vol. III	NKEA MHM (current)
1.	Organizational	<ul style="list-style-type: none"> ❖ Managed by volunteers expert (Vol. I) ❖ Jointly developed by members of local institutions (Vol. II) 	<ul style="list-style-type: none"> ❖ Established Committee chaired by Director of Pharmaceutical Services Division and monitored by Herbal Development Division, MOA. ❖ Involve many agencies namely: IMR, BPFK, FRIM, USM, UKM 	<ul style="list-style-type: none"> ❖ Established Committee chaired by Director of IMR and monitored by Herbal Development Division, MOA. ❖ Appointment of contributors by Committee ❖ Provide specific TOR ❖ Involve many agencies namely: IMR, BPFK, FRIM, MARDI, USM, UKM, UPM

MHM Development

		MHM Vol. I & Vol. II	MHM Vol. III	NKEA MHM (current)
2.	Funding	Volunteers expert initiative	All agencies received allocation from NKEA.	All agencies received allocation from NKEA.
3.	Herbs selection	<p>The process will be based on:</p> <ul style="list-style-type: none"> ▪ Available scientist in a particular area/herbs ▪ Herbs with the most available literature review 	<p>The process will be based on:</p> <ul style="list-style-type: none"> ▪ Available scientist in a particular area/herbs ▪ Priority to the most commercial herbal plants used in herbal-based product development 	<ul style="list-style-type: none"> ❖ Focus on 10 herbal top plants ❖ Priority to the most commercial herbal plants used in herbal-based product development

MHM Development

		MHM Vol. I & Vol. II	MHM Vol. III	NKEA MHM (current)
4.	Quality of data	Data will be verified by volunteers expert	Data produced will be verified by Committee members to suit the industrial needs.	<ul style="list-style-type: none"> ❖ Data will be presented to Technical Committee for review followed by Industrial review ❖ Verified data will be reviewed and endorsed by Main Committee ❖ Data produced will be verified by Committee members to suit the industrial needs.

MHM Development

		MHM Vol. I & Vol. II	MHM Vol. III	NKEA MHM (current)
5.	Standard operating procedure	No documentation	No documentation	Established standard operating procedure for development of analytical tests and writing style for all sections in monograph.
6.	Template	Original template including botanical description, tests for identification, analytical tests for purity and safety.	Additional information on biological and pharmacological activities.	<ul style="list-style-type: none"> ❖ Additional tests included such as HPLC ❖ Content enriched with safety data from <i>in vivo</i> acute toxicity study done by IMR

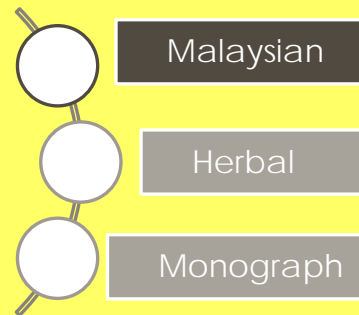
MHM Development

		MHM Vol. I & Vol. II	MHM Vol. III	NKEA MHM (current)
7.	Target	No specific target	No specific target	KPI set up by the Committee based on monograph development from agencies.
8.	Publication	Books	Books	<ul style="list-style-type: none"> ❖ Currently uploaded at www.globinmed.com Home>>Medicinal Herbs & Plants Database>>Malaysian Herbal Monograph (NKEA) ❖ 'MHM 2015' will be published soon.

MHM Development -where we are

- ❖ Compilation of MHM I, II and III.
- ❖ Consist of more than 70 plants.
- ❖ Updated information on 25 plants including data from HPLC analysis and toxicology study.

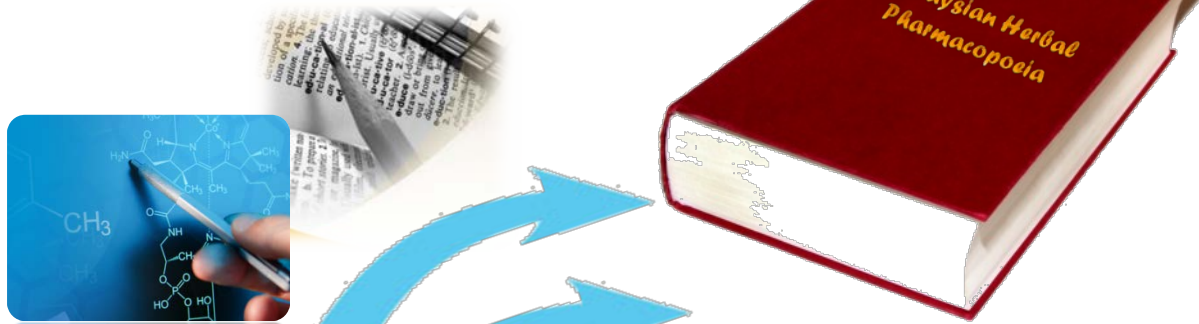
2015



MHM Development

- Where we were?
- Where we are?
- **Where we will be?**

Future for MHM - Where we will be?



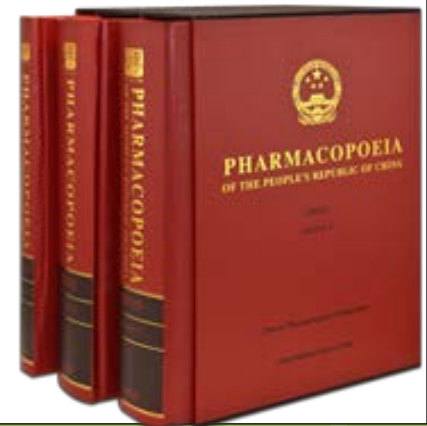
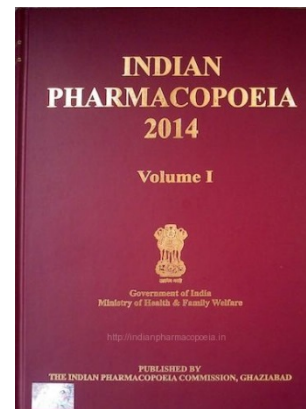
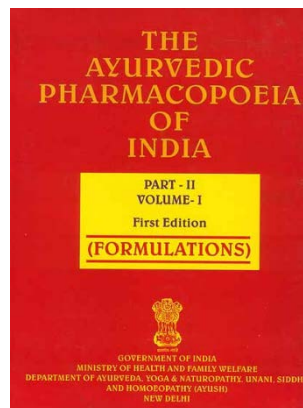
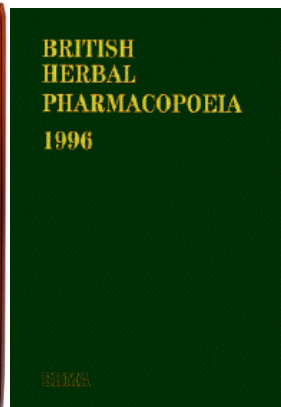
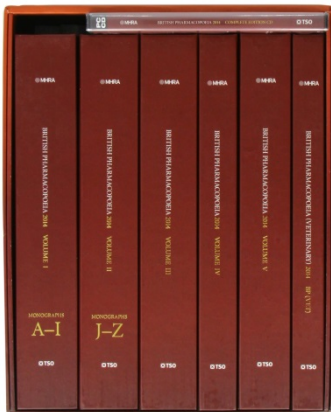
Pharmacopoeia:
A book containing an official list of medicinal drugs together with articles on their preparation and use.

(The American Heritage® Dictionary of the English Language)

MHM

Future for MHM

- More research to be carried out in order to achieve pharmacopoeia standard.
- Herbal pharmacopoeia provides monographs of quality standards for herbs commonly used for the preparation of botanical drugs.
- Consists of scientific information on plant drugs, based on research on their constituents, pharmacology and therapeutic uses.

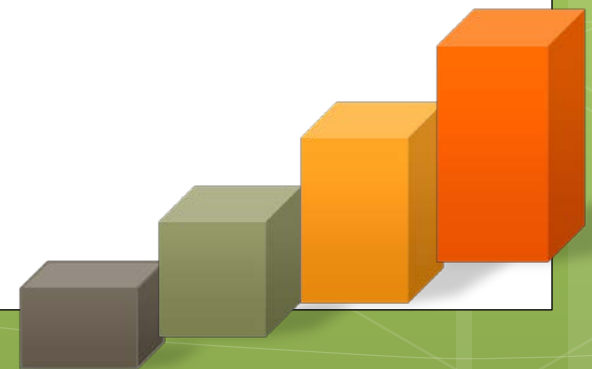


Challenges

Area	Improvement needed
Source of materials	Look into location for sampling to take into consideration of environmental factor i.e soil, rain fall, etc. Currently raw material come from 3 locations.
Cultivation	To consider age of plants and its influence on chemical properties.
Sample for authentication and verification using analytical methods	<ul style="list-style-type: none"><li data-bbox="571 694 1800 796"><input type="checkbox"/> Establish regulation on herbal raw material. Currently refer to regulation for finished product.<li data-bbox="571 808 1800 911"><input type="checkbox"/> To improve phytochemical analysis i.e analysis for the most identified chemical contents in plants.
Assay for active constituents	To practice sequential extraction for specific markers.
Technology and research field	Expand the technology used to study polyherbs.

Challenges

Area	Improvement needed
Human capacity	Training and workshop for all members in Committee to ensure standardization in methodology used and continuity of skills.
Funding	<input type="checkbox"/> More fund for more elaborative research.
Dosage	Training on performing ethnobotany study to gather dosage data.
Organizational	<input type="checkbox"/> Establish pharmacopoeia commission that approved by government. <input type="checkbox"/> Establish policy for pharmacopoeia establishment.



Conclusion

- Implementation of the registration procedure for herbal/traditional medicine implies that MOH has undertaken the responsibility for ensuring the safety, quality and efficacy of imported and locally manufactured product.
- Herbal/traditional medicines must comply with certain basic criteria of acceptable quality to qualify for registration.
- Monograph publication consist of scientific evidence based data to provide adequate and clear enough information for manufacturer and regulatory authority.
- Balance between safeguarding public health and supporting health promotion.

