# TRADITIONAL KNOWLEDGE RESOURCE CLASSIFICATION

# *Traditional Knowledge Digital Library*

- ➤ **Objective to prevent misappropriation of Indian TK at International level**
  - ➤ **Reason of Misappropriation**
    - ➤ **Non-accessibility of Indian TK (prior art) to Patent Examiners**
    - ➤ **Language of India's TK incomprehensible for Patent Examiners**
      - ➤ *A mandatory requirement for Patent grant , i.e. 'Novelty' could not be ascertained*

- ➤ **TKDL breaks the Language & Access barrier**
  - ➤ **Converts Indian TK into five International Languages**
    - ➤ **English, Japanese, Spanish, German & French**

- ➤ **Core of TKDL**
  - ➤ **Traditional Knowledge Resource Classification System**
    - ➤ **linkage with IPC**
    - ▪ **akin to International Patent Classification**
    - ▪ **an abstracting & retrieval tool**
    - ▪ **recognised by committee of experts IPC Union, Geneva**

# Prevention of Misappropriation of India's TK

- **Need for development of Classification tool**

  - TK Codified or oral is unstructured as per modern terminology

  - Lack of access and non retrievable by search engines

  - Non available to Patent examiners despite being in public domain

    - prone to misappropriation

    - lack defensive as well as positive rights

# Required Nature and Characteristics of ClassificationTool

- **Dual purpose of Classification & Abstraction**
- **Must be independent of language**
  - **to create shift from locally understood to globally understood**
- **Wheel should not be re-invented, keep target audience in view, stakeholder(s) & examiners in IP system**
- **Simple and easily understandable**
- **Must create scientific and modern base i.e. terminology e.g.**
  - **plant names - local & botanical**
  - **disease names - local & modern**
- **Acceptable and agreed standards to be followed, such as IPC, ITC, NIC etc.**
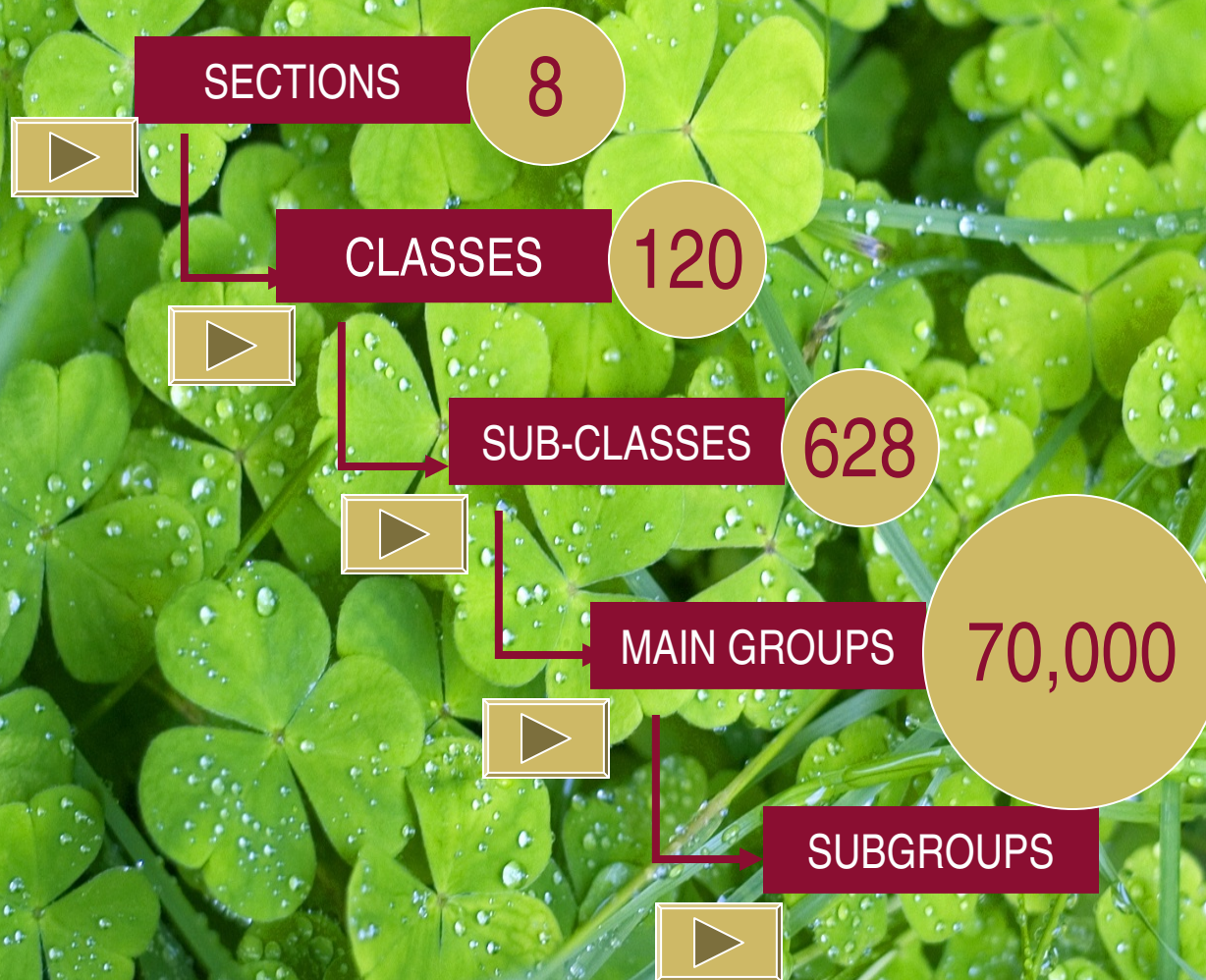- **Inference**
  - **IPC based**

# Objectives of IPC

- **Primarily to provide an effective Classification & Search tool**
  - retrieval of patent information on a particular subject matter by patent examiner, R&D institutions, industries or any user of such information
    - to establish the novelty
    - evaluate the inventive step
    - assessments of latest developments in technologies
- **An instrument**
  - for an orderly arrangement of the patent documents
  - a basis for selective dissemination of information
  - a basis for investigating the state of the art in given fields of technology
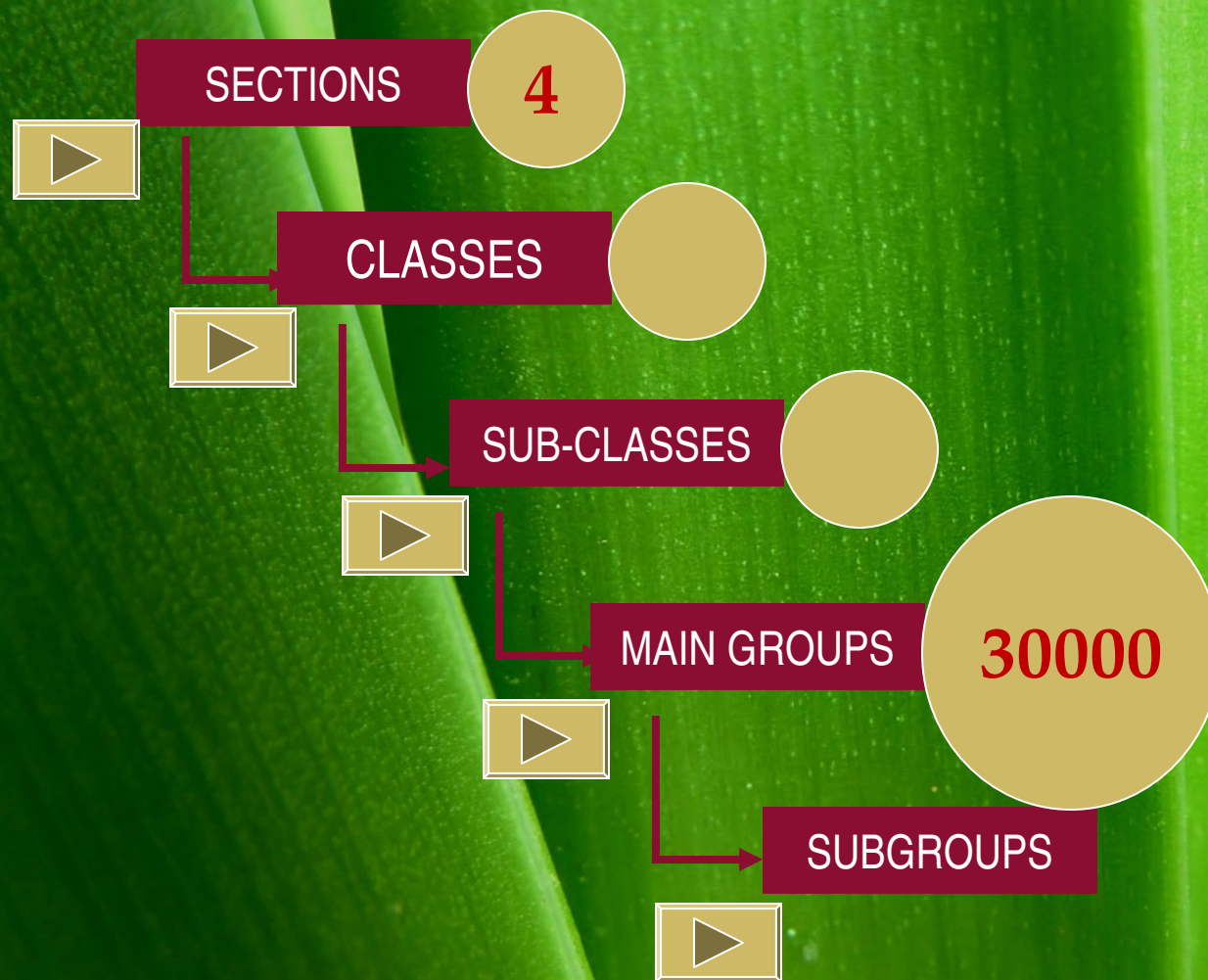
# Need of TKRC

IPC had only one subgroup i.e. A 61 K 35/78 on medicinal plants ➡

- patent examiner (s) were unable to search TK patents for prior art
  - grant of several patents on India's TK where prior art exists

# Structure of TKRC

SECTIONS — 4

CLASSES

SUB-CLASSES

MAIN GROUPS — 30000

SUBGROUPS

# Objectives of TKRC

- **Primarily to provide an effective Classification & Search tool**
  - **Retrieval of patent information in the area of Traditional Medicines, by patent examiner,**
    - **to establish the novelty**
    - **evaluate the inventive step**

# International Patent Classification (IPC) & Traditional Knowledge Resource Classification (TKRC)

| S. No. | Characteristics of Tool | IPC | TKRC |
|---|---|---|---|
| 1. | Objectives | to provide an effective search tool for retrieval of granted patents in a particular field of technology by patent examiner | to provide an effective search tool for retrieval of Non Patent Literature on Indian Traditional Medicinal Systems by patent examiner |
| 2. | Classification Features | a hierarchical system of language independent symbols to classify various technical fields | a hierarchical system of language independent symbols to classify India's Traditional Systems of Medicine |
| 3. | Hierarchical levels | Sections - 1 st level<br>Classes - 2 nd level<br>Subclasses - 3 rd level<br>Main groups - 4 th level<br>Subgroups - 5 th and lower levels<br><br>Upto- Genus level | Sections - 1 st level<br>Classes - 2 nd level<br>Subclasses - 3 rd level<br>Main groups - 4 th level<br>Subgroups - 5 th and lower levels<br><br>Upto- Species level |
| 4. | Search Effectiveness in area of TK | Only One Subgroup on TM | 30,000 Sub-Groups |

## Structure of IPC

- SECTIONS
- CLASS-
- SUB-CLASS-
- GROUP
- SUB-GROUPS : 70,000
  - Medicinal Plants: One

## Structure



## IPC & Medicinal Plants

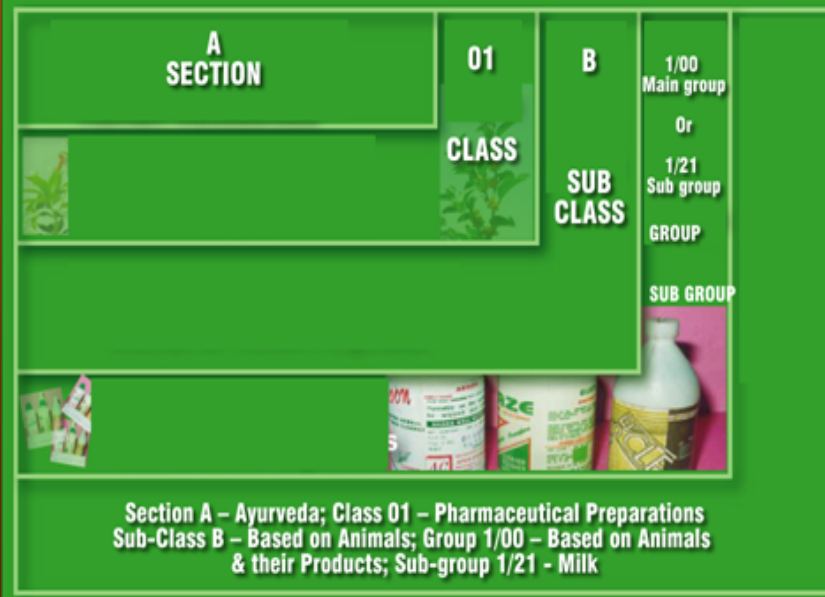| A Section Human Necessities | 61 Class | K Sub Class | 35 | 78 |
|---|---|---|---|---|
| Medical or Veterinary Science; Hygiene | | | Group | Sub Groups |
| Preparation for Medical, Dental or Toilet Purposes | | | | |
| Extracts of Animal, Plant orMicro-organisms | | | | |
| Materials from Plants | | | | |

## Structure of TKRC

- SECTIONS
- CLASS
- SUB-CLASS
- GROUP
- SUB-GROUPS : 30,000
  - Medicinal Plants: 30,000

## Structure



## TKRC Classification Symbol

| A SECTION | 01 | B | 1/00 Main group Or 1/21 Sub group |
|---|---|---|---|
| | CLASS | SUB CLASS | GROUP SUB GROUP |

Section A – Ayurveda; Class 01 – Pharmaceutical Preparations
Sub-Class B – Based on Animals; Group 1/00 – Based on Animals
& their Products; Sub-group 1/21 - Milk

# Subject Areas of TKRC

- Medicinal Plants and their useful parts
- Animals, their parts and products
- Minerals and metals
- Physical form
- Apparatus
- Therapeutic actions
- Disease & Symptom
- Mode and Time of Administration

# Traditional Knowledge Resource Classification

◻ **Sections**

- **A – Ayurveda**
  - **Classes: 4**
    - **Subclasses**
    - **Groups / Sub-Groups**
- **B – Unani**
  - **Classes: 4**
    - **Subclasses**
    - **Groups / Sub-Groups**
- **C – Siddha**
  - **Classes: 3**
    - **Subclasses**
    - **Groups / Sub-Groups**
- **Y – Yoga**
  - **Classes: 6**
    - **Subclasses**
    - **Groups / Sub-Groups**

# Section A – Ayurveda

**Classes : 4**

- **01 – Pharmaceutical Preparations (*Kalpana*)**
- **02 – Personal Hygiene Preparations**
- **03 – Dietary (*food/food stuff or Beverages*)**
- **04 – Biocides, Fumigatives (*Dhupana, krmighna*)**

## Section A Class 01 – Pharmaceutical Preparations (*Kalpana*)

- **Sub-Classes : 7**
  - **01A**      **Based on *Audbhida* (Plants)**
  - **01B**      **Based on *Jangama* (Animals)**
  - **01C**      **Based on *Parthiva* (Minerals)**
  - **01D**      **Characterised by *Roga* (Diseases)**
  - **01E**      **Characterised by *Karma* (Action)**
  - **01F**      **Mode of Administration**
  - **01G**      **Miscellaneous**

- **Sub-Class: A01A – Pharmaceutical Preparations (*Kalpana*) Based on *Audbhida* (Plants)**

  - **Group**      **A01A**

    | | | |
    |---|---|---|
    | 1/00 | Whole medicinal plant |
    | 2/00 | Parts of medicinal plant used |
    | 3/00 | Characterised by Physical form |

# Section B – Unani

**Classes : 4**

01 - Pharmacotherapy *(Ilaj bil Dava)*
02 - Dietotherapy (*Ilaj bil Ghiza*)
03 - Regimental Therapy *(Ilaj bil Tadbeer)*
04 - Surgery *(Ilaj bil Yad)*

**Class 01 – Pharmacotherapy *(Ilaj bil Dava)***

- **Sub-Classes : 8**
  - 01A      Based on **Medicinal Plants** *(Nabatat)*
  - 01B      Based on **Animals and their products** *(Hevanat)*
  - 01C      Based on **Metals/nonmetals/Minerals** *(Maadinat)*
  - 01D      Characterised by **Diseases (Amr*az*)**
  - 01E      **Action and properties of pharmaceutical Preparations**
  - 01F      Mode and time of Administration
  - 01G      **Characterised by Physical Form (Plants, Animals and Minerals)**
  - 01H      **Temperament**

- **Sub-Class: B01A – Pharmacotherapy *(Ilaj bil Dava)***
  **Preparations based on plants *(Nabatat)*)**

  - **Group**      **B01A**    **1/00**      **Whole medicinal plant**
                                     **2/00**      **Parts of medicinal plant used**

# Section C – Siddha

**Classes : 3**

- 01 – **Pharmaceutical Preparations (*Marunthu Seimurai*)**
- 02 – **Personal Hygiene Preparations** *(Noi illa neri murai)*
- 03 – **Regimen (*Ozhukkam*)**

**Section C Class 01 – Pharmaceutical Preparations (*Marunthu Seimurai*)**

- **Sub-Classes : 7**
    - 01A          Based on *Mooligai* (Plants)
    - 01B          Based on *Seevam* (Animals)
    - 01C          Based on *Thaathu* (Metals and Minerals)
    - 01D          Characterised by *Noigal* (Diseases)
    - 01E          Characterised by *Seigai* (Action)
    - 01F          Mode of Administration
    - 01G          Physical forms of Plants, Animals and Minerals

- **Sub-Class: C01A – Pharmaceutical Preparations (*Marunthu seimurai*)**

    **Based on Moologai (Plants)**

    - **Group          C01A      1/00      Whole medicinal plant**
    
                                     **2/00      Parts of medicinal plant used**

# TKRC Example for a Medicinal Plant Used in ISM

**Local Plant name:** *Asvagandha*

**Botanical Name*:* *Withania somnifera*

### TKRC

- **Section**     **A**                      **Ayurveda**
- **Class**     **A01**            **Pharmaceutical preparations**
- **Subclass**     **A01A**         **Based on Plants (*Audbhida*)**
- **Group**     **A01A-1/00**        **Whole medicinal plant**
- **Subgroup**     **A01A-1/2129**        *Withania somnifera*

# TKRC - Mineral Silver nitrate (*Kadikaram*) in Siddha

- **Section  C            Siddha**
- **Class      C01            Pharmaceutical preparations**
- **Subclass C01C          Based on Minerals (*Thaathu*)**
- **Group     C01C-1/00   Metals/Non-metals/minerals/ precious stones  and their salts**
- **Subgroup C01C-1/01  Silver nitrate (*Kadikaram*)**

- **IPC code: C01D 7/06**

# TKRC - Disease in Unani

- **Section    B            Unani**
- **Class        B01          Pharmacotherapy (*Ilaj bil Dava*)**
- **Subclass  B01D        Characterised by Diseases (Amr*az*)**
- **Group      B01D-5/00    Dental Diseases (Amraaz-e-Dandaan)**
- **Subgroup B01D-5/10    Dental Caries (Taakkul-e-Asnaan)**

- **IPC code: A61P 3/12**

# Section Y - Yoga

## Class

- **Y01  Yoga**
- **Y02   Naturopathy**

### Section Y Class 01 – Yoga

- **Sub-Classes : 6**
  - **Y01A**        Techniques
  - **Y01B**        Materials and Time of Practice
  - **Y01C**        Precautions and Contraindications
  - **Y01D**        Diseases
  - **Y01E**        Effects
  - **Y01F**        General

# Section Y – Groups & Sub-groups

**Y01A- Techniques**

| | | |
|---|---|---|
| | **1/00** | **Related to Asanas** |
| | **2/00** | **Related to Pranayamas** |
| | **6/00** | **Related to Dhyana** |
| | **7/00** | **Related to miscellaneous processes** |

**Y01B- Material and Time of Practice**

| | | |
|---|---|---|
| | **1/00** | **Materials** |
| | **2/00** | **Time of Practice** |

**Y01C- – Precautions and Contraindications**

| | | |
|---|---|---|
| | **1/00** | **Precautions** |
| | **2/00** | **Contraindications** |

# Section Y – Groups & Sub-groups

**Y01D-** – Diseases

| | |
|---|---|
| **1/00** | **Diseases of Eye** *(Netra Roga)* |
| **2/00** | **Diseases of Ear** *(Karna Roga)* |
| **3/01** | **Diseases of Nose** *(Nasa Roga)* |
| **9/00** | **Musculo-skeletal Diseases** *(asthi- majja roga)* |

**Y01E-** Effects

| | |
|---|---|
| **1/00** | **Physiological effects** |
| **2/00** | **Spiritual effects** |

**Y01F-** Y01F–General

| | |
|---|---|
| **1/00** | **Body Parts** |
| **2/00** | **Yogic Body Parts** |
| **3/00** | **Kind of Yoga** |
| **4/00** | **Miscellaneous (general)** |

# Yoga TKRC for Breathing Technique

- **Section**       **Y**              **Yoga & Naturopathy**
- **Class**         **Y01**            **Yoga**
- **Subclass**    **Y01A**          **Techniques**
- **Group**        **Y01A-2/00**   **Related to Pranayamas**
- **Subgroup Y01A-2/11**    **Bhramarikumbhaka**

# TKRC – A Facilitating Tool for IPOs

TKRC  -  based on IPC – developed by India-  for 30,000 sub groups on

---- Ayurveda, Unani, Siddha & Yoga

- Quality of examination on Indian systems of medicine at international Patent offices is enhanced

- Reduces the area of search by examiners  for India's  TK

No. of patent applications received on T K

30,000

THANKS

# International Patent Classification

a hierarchical system of language independent symbols, for the classification of patents and utility models, according to the different areas of technology to which they pertain

59 States -member (s) of the Strasbourg Union

IPC-70,000 groups,

**Used by 100 Countries**

# IPC & Medicinal Plants

**A**
**Section**
**Human Necessities**

**61**
**Class**

**K**
**Sub Class**

**35**
**Group**

**78**
**Sub Groups**

**Medical or Veterinary Science; Hygiene**

**Preparation for Medical, Dental or Toilet Purposes**

**Extracts of Animal, Plant orMicro-organisms**

**Materials from Plants**

# Sub-Class: A01A – Pharmaceutical Preparations
## (*Kalpana*)

Group

| | |
|---|---|
| **1/00** | **Whole medicinal plant** |
| **2/00** | **Parts of medicinal plant used** |
| **3/00** | **Characterized by Physical form** |
| **4/00** | **Characterized by active ingredients extracted from plants** |
| **5/00** | **Characterized by unknown constituents not provided for from   1/00 to 4/00** |

## Sub-Class: A01B– Pharmaceutical Preparations (*Kalpana*) Based on Animals (*Jangama*)

Group

| | |
|---|---|
| 1/00 | Based on Animals and their Products |
| 2/00 | Characterized by Physical form |
| 3/00 | Characterized by Active Ingredients extracted from animals |
| 4/00 | Characterized by unknown constituents not provided from 1/00 to 3/00 |
| 5/00 | Animals |

## Sub-Class: A01C – Pharmaceutical Preparations (Kalpana) Based on Minerals (Parthiva)

Group

| | |
|---|---|
| A01C-1/00 | Based on Metals/Non-metals/ Minerals and their salts |
| 2/00 | Mixture of Inorganic and Organic Ingredients |
| 3/00 | Characterized by physical form |
| 4/00 | Characterized by constituents not provided from 1/00 to |
| 5/00 | Characterized by Apparatus (Yantras) |

# Sub-Class: A01D – Characterized by Disease (*Roga*)

**Group**

A01D-1/00   Diseases of Eye *(Netra Roga)*
  2/00       Diseases of Ear  *(Karna Roga)*
  3/00       Diseases of Nose *(Nasa Roga)*


  21/00   Venereal diseases *(Rati Roga)*

  22/00   Psychiatric diseases *(Manasa Roga)*

  23/00   Pediatric Diseases *(Bala Roga)*

# Sub-Class: A01E – Characterized by Action (*Karma*)

Group

A01E-1/00    Action (*Karma*)

   2/00    Properties (*Guna*)

# Sub-Class: A01F—Mode &Time of Administration

Group

A01F-1/00     Mode of administration

2/00     Time of administration

## Sub-Class: A01G – Miscellaneous

Group

A01G-1/00     Miscellaneous

# Example

The Plant locally named in India *Asvagandha*, botanically identified as Withania somnifera (Linn.) Dun., TKRC as

- Section     A                          Ayurveda
- Class        A01                        Pharmaceutical preparations
- Subclass    A01A               Based on Plants(*Audbhida*)
- Group        A01A-1/00       Whole medicinal plants.
- Subgroup   A01A-1/2129   Withania somnifera
                                        (Linn.)Dun.

# Stages of Formal Acceptance of Traditional Knowledge Resource Classification

| | |
|---|---|
| **Feb 2001** | India drives agenda on inclusion of traditional knowledge at International Patent Classification Union |
| | **Task force of five nations constituted by WIPO** |
| **Feb 2002** | Task force recommends creation of subclass in A61 linking Traditional Knowledge Resource Classification developed by India with International Patent Classification |

# Stages of Formal Acceptance of Traditional Knowledge Classification

**Feb 2003** — International Patent Classification Union adopted 200 subgroups for publication by July, 2005

Accords formal recognition and acceptance of Traditional Knowledge as a distinct discipline at international level

**Oct 2004** — Deliberations on IPC-TKRC Concordance list of the new main group A61K 36/00

# Formal Acceptance of Traditional Knowledge   Classification  by IPC Union

**IPC Union Adopted 200 Sub Groups**

**IPC – Sub Groups        :        70000**

- **IPC – Medicinal Plants**
  **till July 2005                    :                1**

- **IPC – Medicinal Plants**
  **Sub Groups – Now            :            200**

# Features of new Main Group - A61K 36/00

- 200 Subgroups
- Modern classification system followed
- Alphabetical arrangement of families and genera within each taxonomic category
- Taxonomic categories up to Genus level
- Common names- convenience

# Subgroup categorisation - A61K 36/00

| S. No | IPC Categories | IPC codes | No. of Subgroups |
|---|---|---|---|
| 1. | Algae | A61K 36/02 to 36/05 | 4 |
| 2. | Fungi & Lichens | A61K 36/06 to 36/09 | 10 |
| 3. | Bryophyta | A61K 36/10 | 1 |
| | Pteridophytes | A61K 36/11 to 36/126 | 3 |
| | Gymnosperms | A61K 36/13 to  36/17 | 5 |
| | Angiosperms | A61K 36/18 | 1 |
| | Dicotyledons | A61K 36/185 to 36/87 | 148 |
| | Monocotyledons | A61K 36/88 to 36/9068 | 35 |
| Total | | | 197 |

# Concordance between IPC & TKRC - Medicinal plants

| IPC Code | Category | TKRC category | TKRC code |
|----------|----------|---------------|-----------|
| A 61 K  36/232 | *Angelica* | *Angelica archangelica* L. | A01A-1/172 |
| | | *Angelica glauca* Edgew. | A01A-1/173 |
| A 61 K  36/233 | *Bupleurum* | *Buplerum falcatum* L . | A01A-1/343 |
| A 61K 36/676 | *Foeniculum (fennel)* | *Foeniculum vulgare* Mill. | A01A-1/872 |
| A 61K 36/264 | *Aristolochia* | *Aristolochia indica* L. | A01A-1/206 |

1. *A61K 36/00 is upto maximum Genus level*
2. *TKRC is upto species level*

# Concordance between IPC & TKRC – Drugs for Disorders

| S. No. | IPC | IPC Category | Description of TKRC | TKRC |
|---|---|---|---|---|
| 1 | A61P 15/00 | Drugs for genital or sexual disorders | Uterine tumour / Pseudocyesis / Molar pregnancy | A01D-12/12 |
| 2 | A61P 1/00 | Drugs for disorders of the alimentary tract or the digestive system | Diseases of ano-rectum | A61D-17/04 |
| 3 | A61P 11/00 | Drugs for disorders of respiratory system | Bronchial asthma | A01D-11/18 |
| 4 | A61P 25/00 | Drugs for disorders of the nervous system | Epilepsy | A01D-8/05 |
| 5 | A61P 17/00 | Drugs for dermatological disorders | Ring worm | A01D-6/10 |

# Concordance between IPC & TKRC
## Anti-inflammatory & others

| S. No. | IPC | Description of IPC | Description of TKRC | TKRC |
|---|---|---|---|---|
| 1 | A61P 29/00 | Non-central Analgesics, antipyretic or antiinflammatory | Antipyretic | A01E-1/56 |
| 2 | A61K 39/00 | General protective or anti-noxious agents | Anti-poisons | A01E-1/165 |
| 3 | A61P 29/00 | Non-central Analgesics, antipyretic or antiinflammatory | Antiinflammatory | A01E- 1/123 |

# Basis

| Activity | Traditional medicine | Modern medicine |
|---|---|---|
| Medical view | Philosopho scientific | Scientific |
| Diagnosis | Comprehensive | Analytical |
| Clinical distinction | Wholeness | Local or systemic |

# Objectives, Aims and Methodology

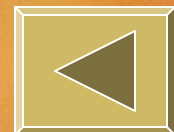| Medicine | Natural | Chemical derivatives of natural/synthetic |
|----------|---------|-------------------------------------------|
| Study method | Human experience | Clinical trials/lab tests |
| Maintenance of health | Promotion & Prevention | Vaccination & Sanitary |
| Treatment | Individualized | Standardized |
| Treatment Aim | Cure of disease | Symptom relief |
| Treatment View | Natural | Invasive |
| Despite of above difference of outlook, both the systems have many things in common | | |
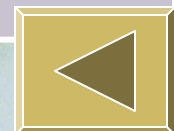
# Diagnostic Methodology and Identification Symptoms

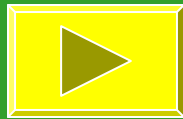| Disease | Symptoms in TM (Ayurveda) | Symptoms in Modern Medicine |
|---------|---------------------------|------------------------------|
| Fever | Rise in body temperature, malaise/bodyache, loss of/diminished perspiration[1] | An elevation of body temperature above the normal range (Oral temperature 98.6°F; 37°C) along with associated symptoms[1] |
| Gout | Disease starts from base of toe or thumb, with swelling and severe pricking pain[2] | Acute mono or polyarticular pain...The pain becomes progressively more severe and is often described as throbbing, crushing or excruciating...The meta tarsophalangeal joint of the great toe is involved most frequently[2] |

# Drugs (Substance) and its components

| Drug | TM | MM |
|------|-----|-----|
| *Psoralia corylifolia* Linn. | Seeds used in leucoderma | Chemical compound psoralin extracted from seeds used in leucoderma |
| *Colchicum luteum* Baker | Used in treatment of gout | Colchicines extracted from plant is useful for treatment of gout |
| *Commiphora mukul* Hook ex Stocks | Exudates used in treatment of obesity | Guggulosterone extracted from the exudates is useful in the treatment of hyperlipidaemia |

# TKRC Classification Symbol

| A SECTION | 01 CLASS | B SUB CLASS | 1/00 Main group Or 1/21 Sub group GROUP SUB GROUP |
|---|---|---|---|

Section A – Ayurveda; Class 01 – Pharmaceutical Preparations
Sub-Class B – Based on Animals; Group 1/00 – Based on Animals
& their Products; Sub-group 1/21 - Milk