

UNIT VI

OINTMENTS

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OINTMENTS

“OINTMENTS ARE SEMISOLID DOSAGE FORMS INTENDED FOR EXTERNAL APPLICATION TO SKIN OR MUCOUS MEMBRANE”

- EITHER MEDICATED OR NON MEDICATED

- **MEDICATED**

EITHER DISSOLVED OR
DISPERSED IN A VEHICLE AS
FINE POWDER e.g STEROIDS.

- **UNMEDICATED**

UNMEDICATED OINTMENTS
ARE USED FOR PHYSICAL
EFFECTS SUCH AS
PROTECTANTS or LUBRICANTS

■ **OINTMENT BASES**

OINTMENT BASES ARE CLASSIFIED INTO FOUR GENERAL GROUPS.

- OLEAGINOUS BASES.
- ABSORPTION BASES.
- WATER-REMOVABLE BASES.
- WATER-SOLUBLE BASES.

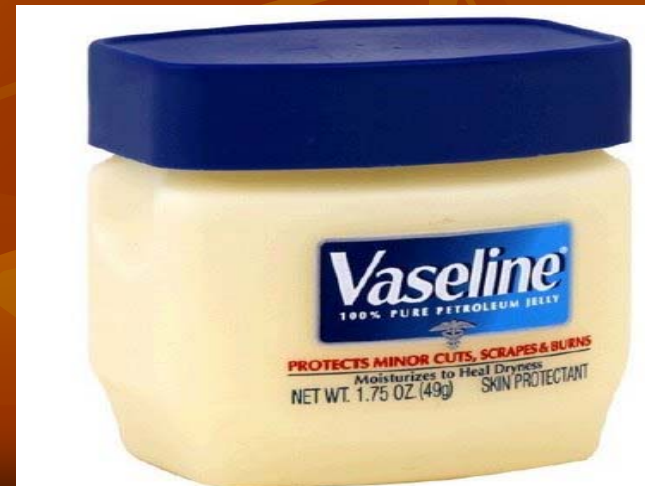
OLEAGINOUS BASES

(HYDROCARBON BASES)

- ON APPLICATION TO SKIN THEY HAVE AN EMOLLIENT EFFECT.
- PROTECT AGAINST ESCAPE OF MOISTURE.
- THEY ARE EFFECTIVE AS OCCLUSIVE DRESSINGS.
- IMMISCIBLE WITH WATER AND DIFFICULT TO WASH OFF.

- THEY CAN REMAIN ON SKIN FOR LONGER PERIODS WITHOUT DRYING OUT.
- WATER AND AQUEOUS SOLUTIONS IN SMALL AMOUNTS CAN BE INCORPORATED WITH SMALL DIFFICULTY.
- WHEN POWDERED SUBSTANCES ARE TO BE INCORRRPORATED LIQUID PETROLATUM IS USED AS LEVIGATING AGENT.

- THEY INCLUDE:
- PETROLATUM
- WHITE PETROLATUM
- YELLOW OINTMENT
- WHITE OINTMENT



ABSORPTION BASES

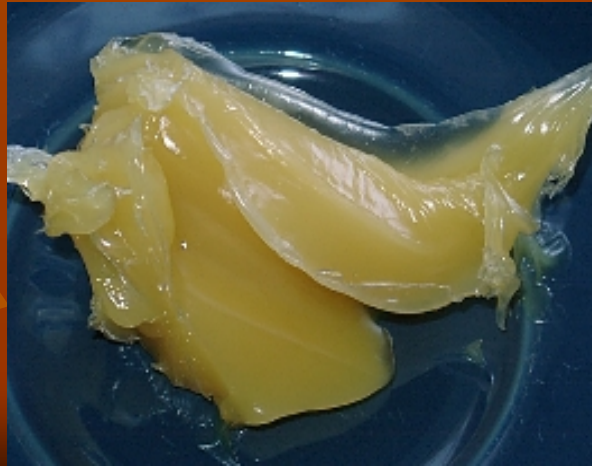
- TWO TYPES
- THOSE THAT PERMIT INCORPORATION OF AQUEOUS SOLUTIONS RESULTING IN FORMATION OF W/O EMULSIONS
- THOSE THAT ARE ALREADY W/O EMULSIONS AND PERMIT INCORPORATION OF ADDITIONAL QUANTITY OF AQUEOUS SOLUTION

PROPERTIES OF ABSORPTION BASES

- THESE BASES MAY BE USED AS EMOLLIENT
- THEY DO NOT PROVIDE DEGREE OF OCCLUSION
- THESE BASES ARE NOT EASY TO REMOVE FROM SKIN SINCE THE EXTERNAL PHASE OF EMULSION IS OLEAGINOUS
- DIFFICULT TO WATER WASHING

- THEY PERMIT INCORPORATION OF AQUEOUS SOLUTION RESULTING IN FORMATION OF W/O EMULSION.
- THOSE THAT ARE ALREADY W/O EMULSION, THEY PERMIT SMALL QUANTITIES OF AQUEOUS SOLUTION TO BE INCORPORATED.
- THEY FORM A GREASY FILM ON SKIN SURFACE

- THEY INCLUDE:
- LANOLIN
- ANHYDROUS LANOLIN
- COLD CREAM



WATER REMOVABLE BASES

(EMULSIFYING BASES)

- THEY ARE OIL IN WATER EMULSIONS HAVING AN EMULSIFIER WHICH MAKES THEM READILY MISCIBLE WITH WATER.
- THEY MAY BE DILUTED WITH WATER OR AQUEOUS SOLUTIONS.
- BECAUSE OF THEIR SURFACE ACTIVE PROPERTY THEY FACILITATE CONTACT b/w SKIN AND MEDICAMENT

- READILY WATER WASHABLE
- THEY INCLUDE:
- HYDROPHILIC OINTMENTS
- VANISHING CREAMS



WATER SOLUBLE BASES

(GREASELESS BASES)

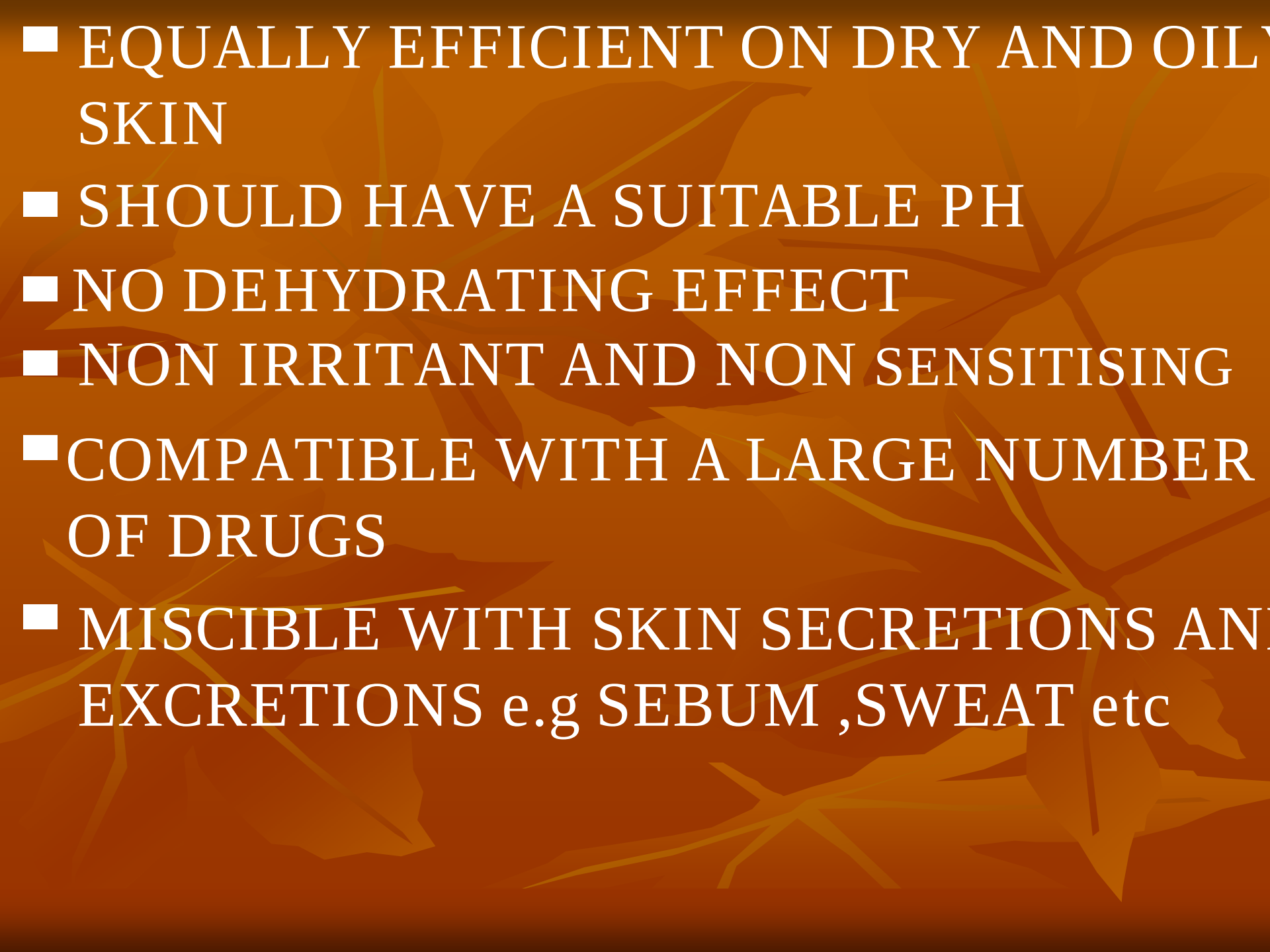
- UNLIKE OTHER BASES THEY CONTAIN ONLY WATER SOLUBLE COMPONENTS
- THEY ARE COMPLETELY WATER WASHABLE
- AQUEOUS SOLUTIONS CAN NOT BE INCORPORATED EFFICIENTLY BECAUS THEY SOFTEN GREATLY WITH WATER ADDITION

- THEY MOSTLY ARE USED FOR INCORPORATION OF SOLID SUBSTANCES
- THESE BASES ARE USED FOR LOCAL ANAESTHETICS AND ARE USED WHEN EASY WASHING FROM SKIN IS REQUIRED
- THEY INCLUDE:
 - PEG OINTMENT



SELECTION OF APPROPRIATE BASE

- DEPENDS UPON PURPOSE FOR WHICH OINTMENT IS GOING TO BE APPLIED
- DESIRED RELEASE OF DRUG SUBSTANCE FROM OINTMENT BASE
- DESIRABILITY OF TOPICAL ABSORPTION
- DESIRABILITY OF OCCLUSION OF MOISTURE FROM SKIN
- STABILITY OF DRUG IN OINTMENT BASE
- DESIRABILITY OF SURFACE TO WHICH IT IS TO BE APPLIED

- 
- EQUALLY EFFICIENT ON DRY AND OILY SKIN
 - SHOULD HAVE A SUITABLE PH
 - NO DEHYDRATING EFFECT
 - NON IRRITANT AND NON SENSITISING
 - COMPATIBLE WITH A LARGE NUMBER OF DRUGS
 - MISCIBLE WITH SKIN SECRETIONS AND EXCRETIONS e.g SEBUM ,SWEAT etc

PREPARATION OF OINTMENTS

- TWO GENERAL METHODS DEPENDING PRIMARILY ON NATURE OF INGREDIENTS AND PHYSICAL PROPERTIES OF CONSTITUENTS OF BASE
- INCORPORATION
- FUSION

INCORPORATION

INCORPORATION OF SOLIDS

INCORPORATION OF LIQUIDS

INCORPORATION

(INCORPORATION OF SOLID)

- THE COMPONENTS ARE MIXED UNTIL A UNIFORM PREPARATION IS ATTAINED
- ON SMALL SCALE AS IN EXTEMPORANEOUS COMPOUNDING THE COMPONENTS ARE MIXED USING PESTLE AND MORTAR OR SPATULA MAY BE USED TO RUB INGREDIENTS ON AN OINTMENT SLAB
- MEDICAMENT IS MIXED WITH SMALL AMOUNT OF BASE AND REMAINDER IS MIXED GRADUALLY AND TRITURATED CONTINUOUSLY
- IF MATERIAL TO BE INCORPORATED IS SOLID THEN FIRST SOLID IS TRITURATED TO FINE POWDER AND THEN SHOULD BE INCORPORATED

- IT IS OFTEN DESIRABLE TO REDUCE PARTICLE SIZE OF CRYSTALLINE MATERIAL SO THAT FINAL PRODUCT WILL NOT BE GRITTY
- THIS IS DONE BY LEVIGATING OR MIXING SUBSTANCE IN A VEHICLE IN WHICH IT IS INSOLUBLE SO THAT A SMOOTH DISPERSION IS FORMED
- LEVIGATING AGENT SHOULD BE IN EQUAL VOLUME TO SOLID MATERIAL
- IF MATERIAL TO BE INCORPORATED IS SOLUBLE IN ONE OF INGREDIENTS OF BASE ,FIRST DISSOLVE IN THAT INGREDIENT AND THEN INCORPORATE
- TWIN-ROLLER MILLS ARE AVAILABLE FOR PREPARATION OF SMALL QUANTITIES OF OINTMENTS BY HAND
- IF INGREDIENTS OF OINTMENTS ARE REACTIVE WITH STAINLESS STEEL SPATULA(AS DOES IODINE FOR EXAMPLE)HARD RUBBER SPATULA MAY BE USED

INCORPORATION

(INCORPORATION OF LIQUID)

- LIQUIDS ARE ADDED ONLY AFTER DUE CONSIDERATION OF AN OINTMENT BASE CAPACITY TO ACCEPT VOLUME REQUIRED
- ONLY SMALL AMOUNT OF AQUEOUS SOLUTION IS INCORPORATED INTO OLEAGINOUS OINTMENT
- HYDROPHILIC OINTMENTS READILY ACCEPT LARGE VOLUMES
- WHEN IT IS NECESSARY TO ADD AQUEOUS PREPARATION TO HYDROPHOBIC BASE, SOLUTION FIRST MAY BE INCORPORATED INTO MINIMUM AMOUNT OF HYDROPHILIC BASE AND THEN ADDED TO HYDROPHOBIC BASE
- ALL LIQUIDS HAVE THEIR LIMITS TO RETAIN LIQUIDS BEYOND WHICH THEY BECOME TOO SOFT OR SEMISOLID

FUSION

- MEDICATED OINTMENTS AND OINTMENT BASES CONTAINING COMPONENTS SUCH AS BEESWAX, PARAFFIN, STEARYL ALCOHOL AND HIGH M.W PEGs WHICH DO NOT LEND THEMSELVES WELL TO MIXTURE BY INCORPORATION ARE PREPARED BY FUSION
- OINTMENTS CONTAINING INGREDIENTS WHICH ARE QUITE SOLID AT ROOM TEMPERATURE ARE PREPARED BY MELTING INGREDIENTS IN A PORCELAIN DISH OVER WATER BATH
- THE USUAL METHOD IS TO MELT SUBSTANCE WITH HIGHEST MELTING POINT FIRST, AND THEN ADD INGREDIENTS IN ORDER OF THEIR MELTING POINTS
- STIRRING SHOULD BE CONTINUOUS UNTILL OINTMENT IS HOMOGENEOUS AND REACHES TO CONGEALING POINT

- AN INSOLUBLE SUBSTANCE IS INCORPORATED AFTER LEVIGATING WITH OIL
- ON LARGE SCALE FUSION IS CARRIED OUT IN STEAM JACKETED KETTLES

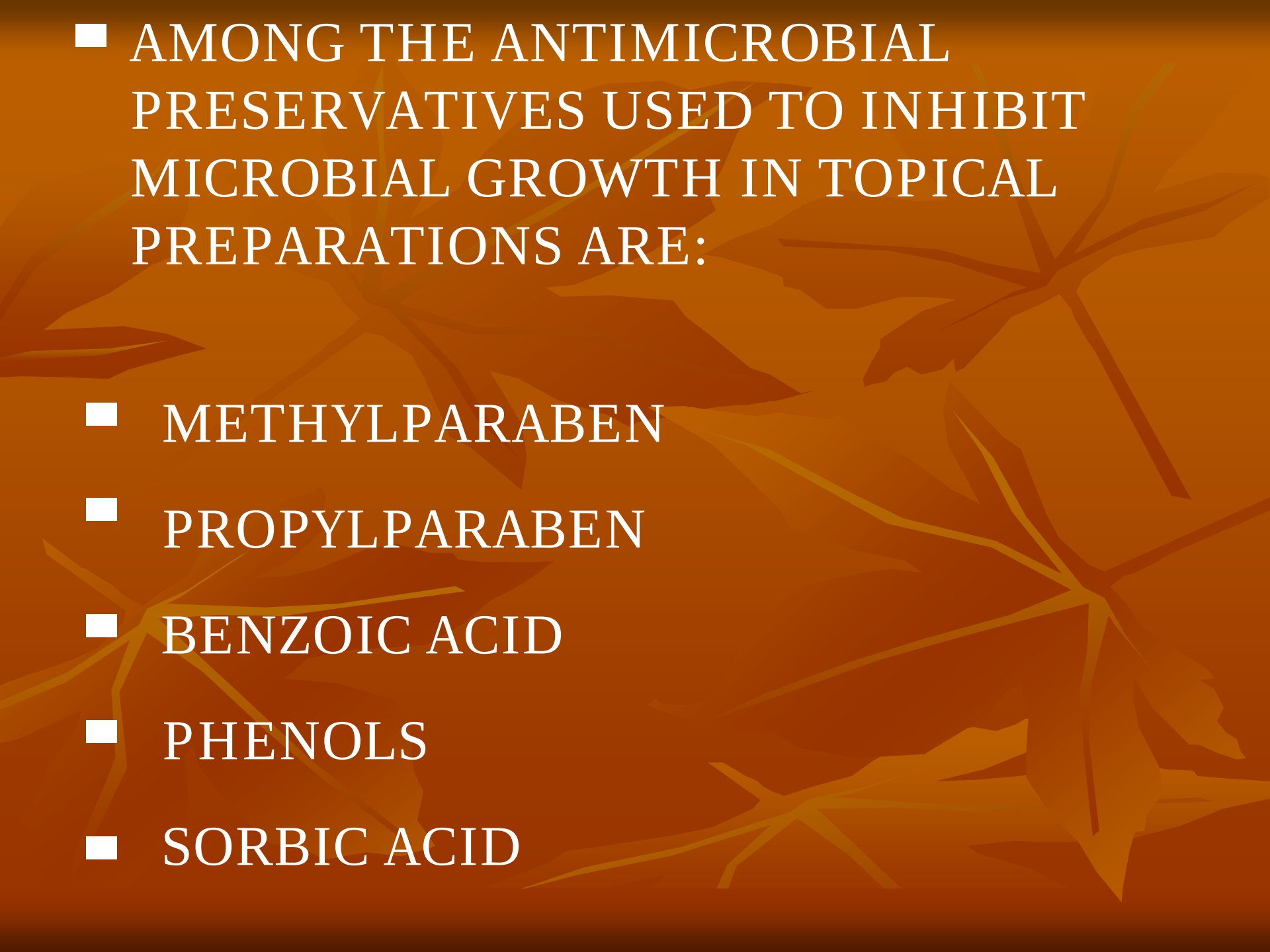
MICROBIAL CONTENT

The background of the slide features a pattern of stylized, overlapping leaves in various shades of orange and brown, creating a textured, autumnal effect.

- TOPICAL APPLICATIONS ARE NOT REQUIRED TO BE STERILE, HOWEVER CONSIDERATION MUST BE GIVEN TO INFECTIOUS RESPONSE CAUSED BY CERTAIN MICROORGANISMS
- BASES HAVING HIGH WATER CONTENT SUPPORT MICROBIAL GROWTH
- DERMATOLOGIC PRODUCTS SHOULD BE FREE OF:
- STAPHYLOCOCCUS AUREUS
- PSEUDOMONAS AERUGINOSA



PRESERVATION



■ AMONG THE ANTIMICROBIAL PRESERVATIVES USED TO INHIBIT MICROBIAL GROWTH IN TOPICAL PREPARATIONS ARE:

- METHYLPARABEN
- PROPYLPARABEN
- BENZOIC ACID
- PHENOLS
- SORBIC ACID

FALLING OF OINTMENT

FILLING IS DONE BY TWO WAYS:

- HAND FILLING
- MECHANICAL FILLING

HAND FILLING:

- WEIGHTED AMOUNT OF OINTMENT IS PLACED IN A JAR WITH THE HELP OF FLEXIBLE SPATULA
- OINTMENT IS FORCED DOWN TO BOTTOM AND ALONG WALLS OF JAR TO AVOID AIR ENTRAPMENT

MECHANICAL FILLING:

- IN THIS METHOD OINTMENTS CAN BE FILLED IN TIN JARS AND POLYETHYLENE TUBES
- FILLING IS DONE BY PRESSURE FILLER WHICH CONSIST OF NOZEL AND PISTON FROM WHICH OINTMENT OOZES OUT ON APPLYING PRESSURE ON PISTON
- TUBES ARE FILLED FROM BACK SIDE AND THEN ARE SEALED

- VACCUM FILLERS ARE ALSO AVAILABLE IN WHICH NOZEL IS ATTACHED TO VACCUM PUMP

AN OINTMENT
FILLER



PACKAGING

- OINTMENTS SHOULD BE PACKAGED SO THAT THERE ARE NO AIR SPACES IN JAR
- MUST BE STORED IN WELL CLOSED CONTAINER TO AVOID CONTAMINATION

STORAGE

- STORE AT COOL PLACE TO AVOID SOFTENING AND LIQUIFICATION OF BASE

LABELLING

- IT SHOULD BE LABELLED AS:

“FOR EXTERNAL USE ONLY”

CREAMS



“VISCIOUS LIQUID OR SEMISOLID EMULSIONS FOR APPLICATION ON SKIN AND MUCOUS MEMBRANE”

CREAMS MAY BE:

- MEDICATED

FOR SPECIFIC ACTION e.g FOR APPLICATION ON BURNS

- NON-MEDICATED

EMOLLIENT

TWO TYPES:

→ WATER IN OIL OR OILY CREAMS:

CONTAIN W/O EMULSIFIER e.g WOOL FATS AND WOOL ALCOHOL

EXAMPLES:

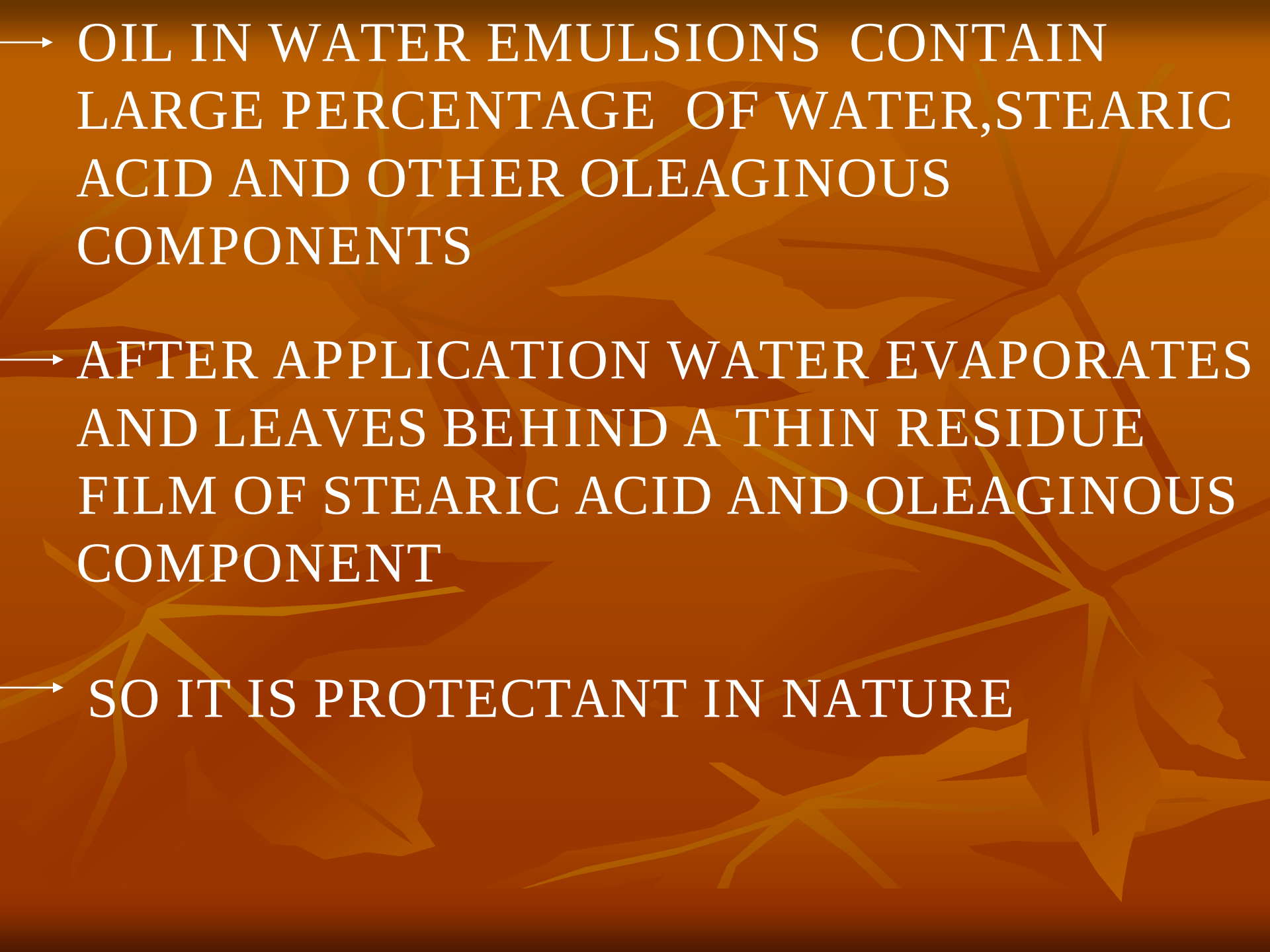
COLD CREAM
ZINC CREAM

→ OIL IN WATER OR AQUEOUS CREAMS:

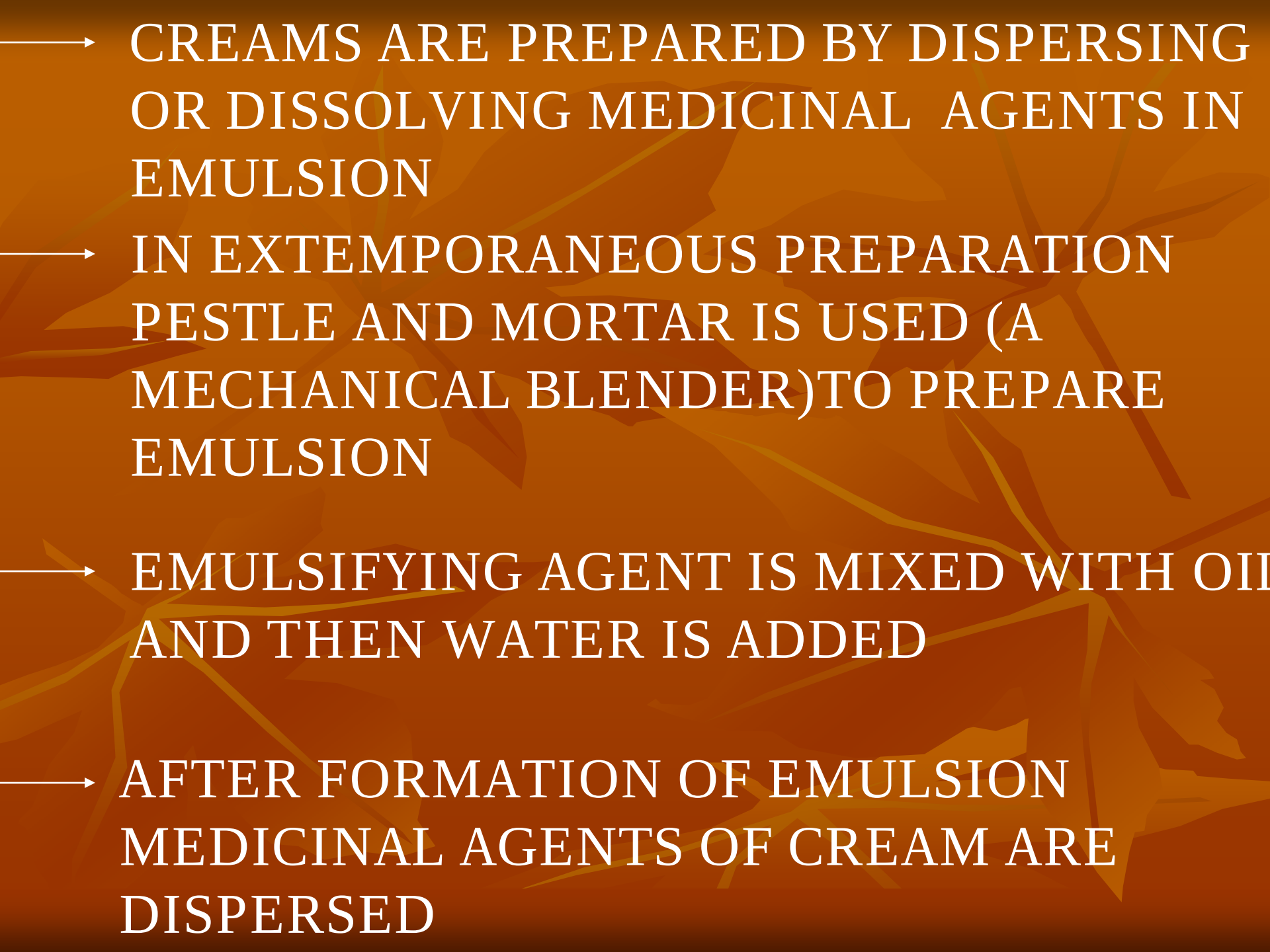
CONTAIN O/W EMULSIFIER e.g EMULSIFYING WAX ALKALI SALT OF A FATTY ACID

EXAMPLES:

VANISHING CREAM
HYDROCORTISONE CREAM

- 
- OIL IN WATER EMULSIONS CONTAIN LARGE PERCENTAGE OF WATER, STEARIC ACID AND OTHER OLEAGINOUS COMPONENTS
 - AFTER APPLICATION WATER EVAPORATES AND LEAVES BEHIND A THIN RESIDUE FILM OF STEARIC ACID AND OLEAGINOUS COMPONENT
 - SO IT IS PROTECTANT IN NATURE

PREPARATION OF CREAMS

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- CREAMS ARE PREPARED BY DISPERSING OR DISSOLVING MEDICINAL AGENTS IN EMULSION
 - IN EXTEMPORANEOUS PREPARATION PESTLE AND MORTAR IS USED (A MECHANICAL BLENDER) TO PREPARE EMULSION
 - EMULSIFYING AGENT IS MIXED WITH OIL AND THEN WATER IS ADDED
 - AFTER FORMATION OF EMULSION MEDICINAL AGENTS OF CREAM ARE DISPERSED

★ ADVANTAGES OVER OINTMENTS

➔ AQUEOUS CREAMS ARE EASY
TO WASH THAN ALL
OINTMENTS

➔ CREAMS ARE EASIER TO
SPREAD THAN
OINTMENTS

PACKAGING



SAME PACKAGING AS OINTMENTS:

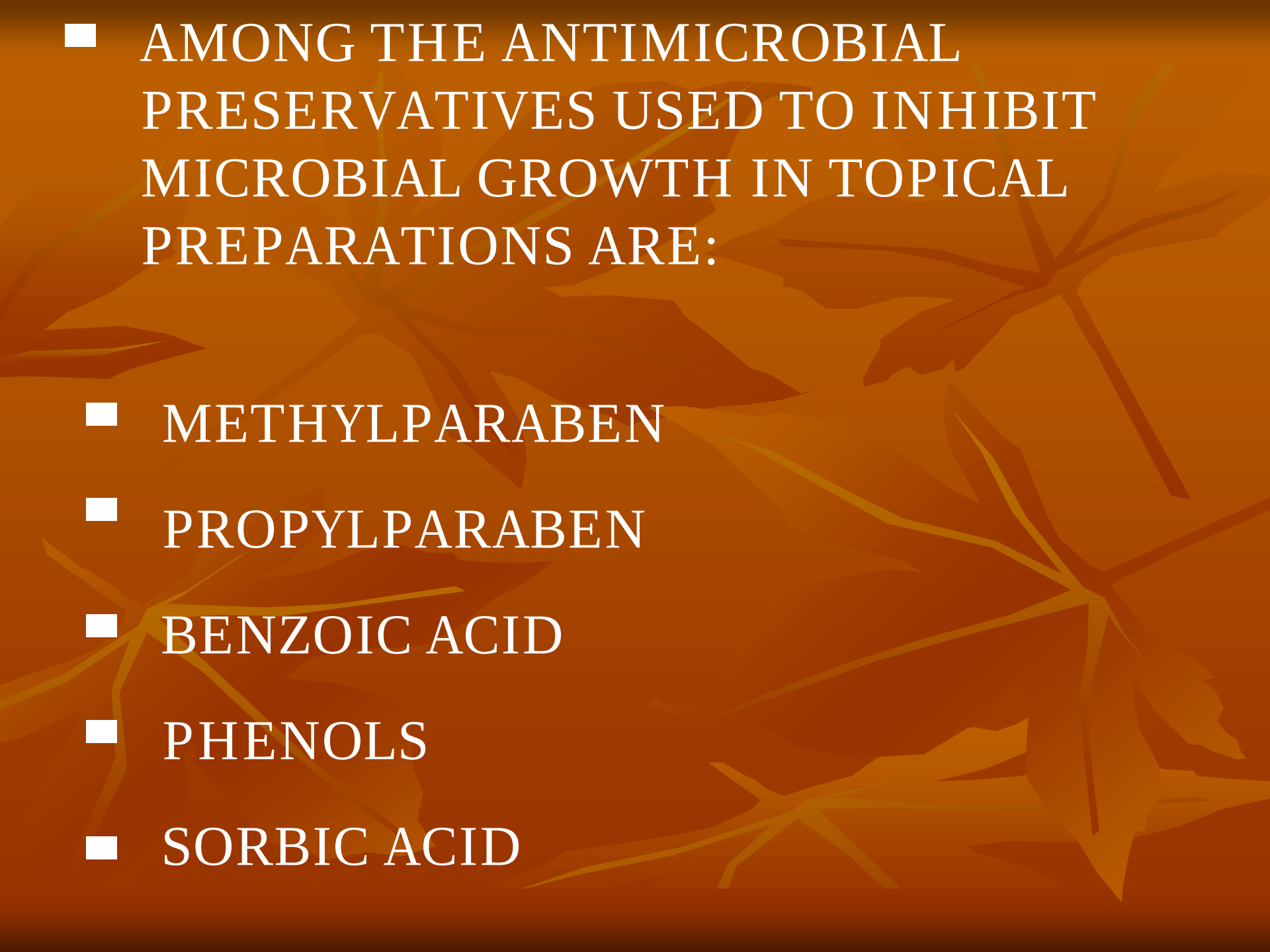


CREAMS SHOULD BE PACKAGED SO
THAT THERE ARE NO AIR SPACES IN
JAR



MUST BE STORED IN WELL CLOSED
CONTAINER TO AVOID
CONTAMINATION

PRESERVATION OF CREAMS



- AMONG THE ANTIMICROBIAL PRESERVATIVES USED TO INHIBIT MICROBIAL GROWTH IN TOPICAL PREPARATIONS ARE:

- METHYLPARABEN

- PROPYLPARABEN

- BENZOIC ACID

- PHENOLS

- SORBIC ACID

SOURCES

- ANSEL'S
PHARMACEUTICAL DOSAGE FORMS AND
DRUG DELIVERY SYSTEMS
- NASIR HAYYAT SIPRA
- WWW.GOOGLE.COM
- WWW.WIKIPEDIA.COM