PLATE 1
DIFFERENT WASTES EXPERIMENTED FOR COMPOSTING

(a)

(a) Willow waste found in OE mills

(b)

(b) Willow waste thrown away in landfills

(c)

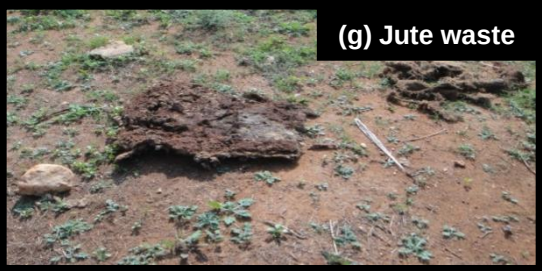
(d)

(e)

Collected industrial wastes – blue poom (c), white poom (d) and cotton dust (e)

(f) Silk waste

(g) Jute waste



(h) Coir waste

(i) Water hyacinth

Wastes collected for composting pilot studies
(f)sun drying of fresh sericulture waste, (g)composted jute sacks,
(h)coir wastes in the composting bin and (i)retted water hyacinth

PLATE 2
PILOT STUDIES ON WEB FORMATION AND HANDMADE PAPER

(a)

(a) The web obtained from willow waste

(b)

Accumulated trash inside the combing machine during web formation

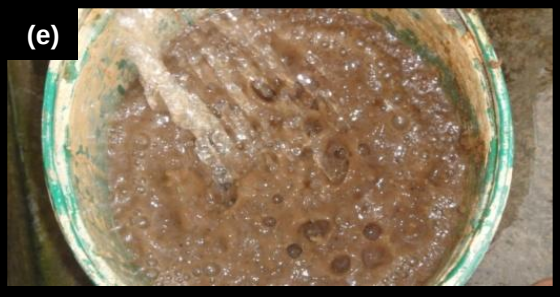
(c)

(c) Soaked willow waste for paper making

(d)

Grinding willow waste

(e)



Preparation of slurry

(f)

(g)

Preparation of handmade paper boards from willow waste

PLATE 3

PREPARATION OF COIR, WATER HYACINTH AND PAPER SLUDGE TO BE USED WITH WILLOW WASTE FOR MAKING ABSORBENT WIPES

Chopping of water hyacinth with coir

Mixing of willow waste with paper sludge

100% water hyacinth wipes

Sample made of willow waste with water hyacinth

Hydraulic pressing machine

Both the above are samples of willow dust+ paper sludge) and (willow waste + coir)

Both the above are samples made of (willow waste + coir)

PLATE 4

PILOT STUDY ON PREPARATION OF COMPOSITES USING WILLOW WASTE WITH NATURAL RESIN (TAMARIND KERNEL POWDER) AND SYNTHETIC RESIN (POLYPROPYLENE)

Tamarind Kernel Powder (inside top picture) and paste made using water

Willow waste with Polypropylene staple fiber and polypropylene as sheets (on right)

Compression Molding machine

Composites trial boards made using willow waste with tamarind kernel powder (a &b) willow waste with polypropylene (c & d)

PLATE 5

PREPARATIONS FOR COMPOSTING WILLOW WASTE USING THE SELECTED DECOMPOSING SOURCES – COW DUNG AND EFFECTIVE MICROORGANISMS

Preparation of cow dung slurry

Activation of Effective Microorganisms using stock solution and organic jaggery

Purchase of tools and equipments required for the study

Installation of cement rings for the study

PLATE 6
COMPOSTING OF WILLOW WASTE

(a)

(b)

(c)

Collection of willow waste (a) and layering using hay and willow waste (b & c)

(d)

(e)

(f)

(g)

(h)

(i)

(d & e) Addition of cow dung slurry, (f) watering and sealing the composting bin
(g) Addition of water to the prepared effective microorganisms (EM) solution
(h) Spaying of the EM solution to willow waste layer and sealing the bins to begin composting

PLATE 7
OBSERVATIONS DURING COMPOSTING OF WILLOW WASTE AND OVERTURNING OF COMPOSTING BEDS TO ENSURE UNIFORM COMPOSTING

Termites in the pits

Release of gas

Watering and mixing of composting beds

Overturning of both the composting bins, by removing the material and layering

Willow waste compost

PLATE 8
VERMICOMPOSTING OF WILLOW WASTE COMPOSTS MADE USING COW DUNG AND EFFECTIVE MICRORGANISMS AS DECOMPOSING SOURCES

Discussion with the vermicomposting expert, Mr. Vasantha Kumar, H5 organics, (Coimbatore), on observations, choice of earthworms and maintenance of vermicomposting bins

Release of earthworms in the composting bin

Heaping of the collected willow waste vermicompost from the surface

Collection and storage of the prepared vermicompost

PLATE 9
COMMENCEMENT OF FIELD STUDY TO GROWN COTTON USING THE PREPARED BIO-MANURES FROM WILLOW WASTE

Preparation of land for sowing

LABELLING THE BLOCKS AS PER THE RANDOMISED BLOCK DESIGN (SIX TREATMENTS IN FOUR REPLICATIONS)

PLATE 10
STAGES IN CULTIVATION OF COTTON - I

PLATE 11
STAGES IN CULTIVATION OF COTTON - II

PLATE 12
GINNING OF THE COTTON KAPAS COLLECTED FROM THE FIELD

PLATE 13
PRODUCTION OF HANDMADE PAPER AT
JYOTHI INDUTRIES, ERODE (INDIA)



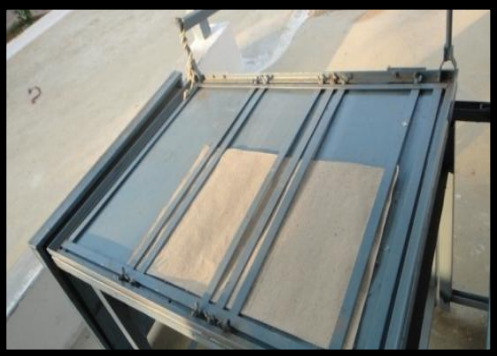






PLATE 14

CREATION OF PAPER BAGS USING WILLOW WASTE AND VALUE ADDITION THROUGH SCREEN PRINTING



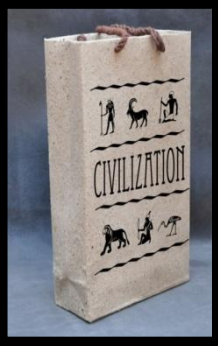


PLATE 15
SCREEN PRINTED WILLOW WASTE HANDMADE PAPER BAGS

PLATE 16

TRAINING ON HANDMADE PAPER PRODUCT MAKING AND APPLICATION OF NATURAL DYES USING TEXTILE DYEING AND PRINTING TECHNIQUES AT MUNNAR, KERALA (INDIA)









PLATE 17
PATTERNS OF RESIST DYEING USING INDIGO DYE ON WILLOW WASTE HANDMADE PAPER

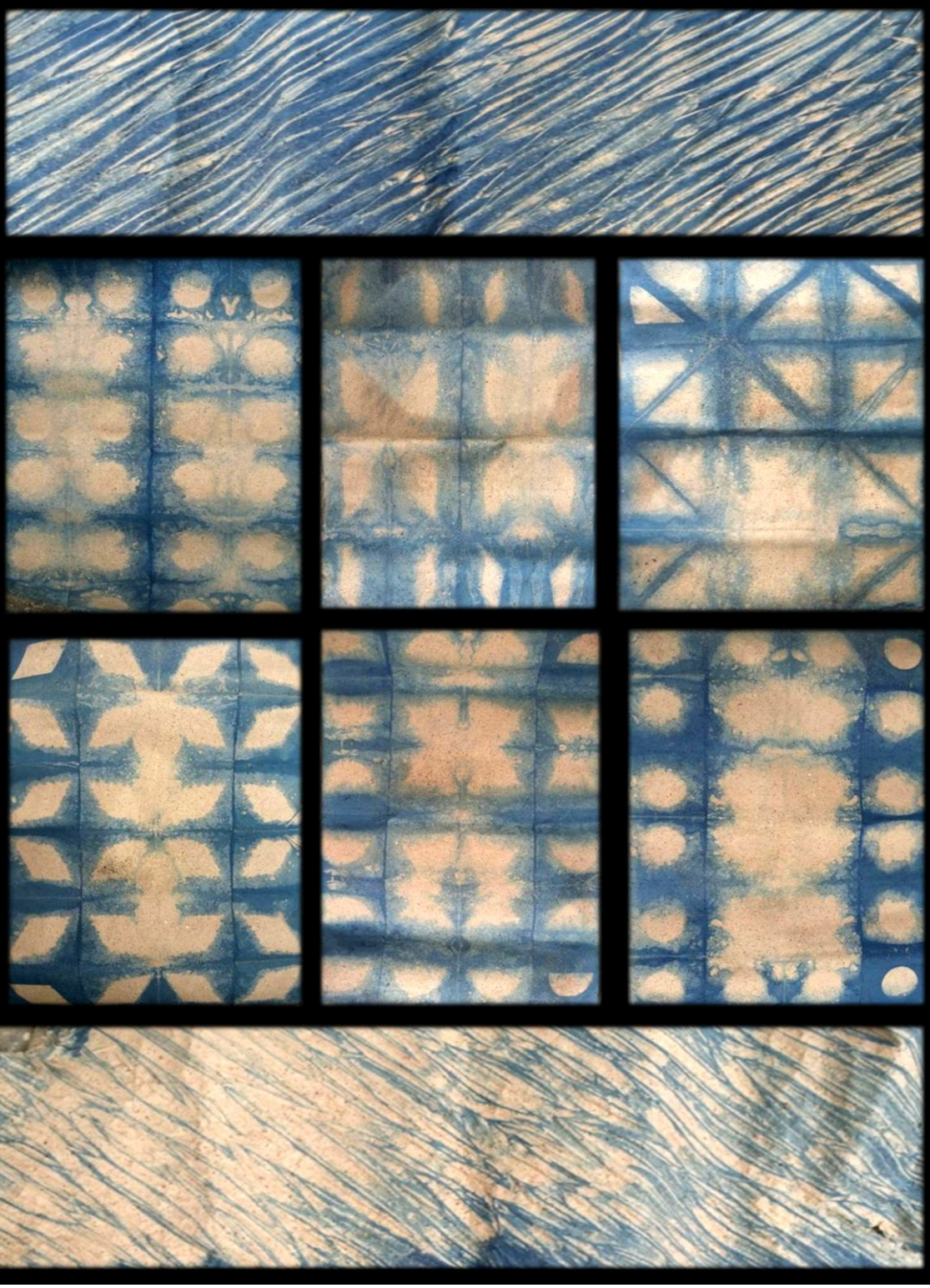


PLATE 18

TRADITIONAL BLOCK PRINTING USING MADDER DYE ON WILLOW WASTE HANDMADE PAPER

PLATE 19
PATTERNS OF BLOCK PRINTING USING NATURAL DYES ON WILLOW WASTE HANDMADE PAPER

PLATE 20
EVERYDAY UTILITIES
MADE FROM WILLOW WASTE HANDMADE PAPER - I

Visiting cards

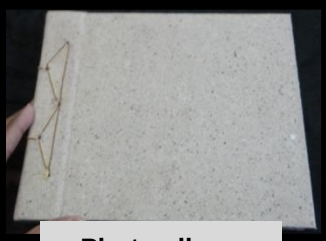
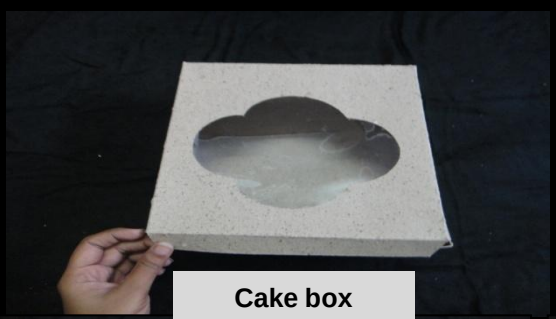


Photo album

Book marks

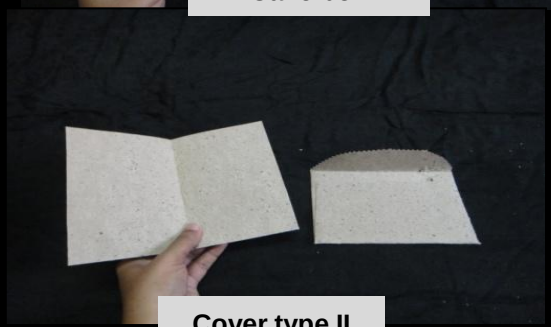
Photo frame

Envelops



Cake box

Appliqués



Cover type II

Cover type I

Cover type III

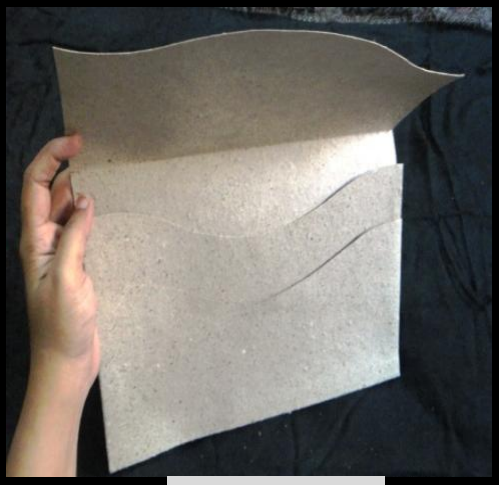
PLATE 21
EVERYDAY UTILITIES
MADE FROM WILLOW WASTE HANDMADE PAPER - II

Pouch Type - I

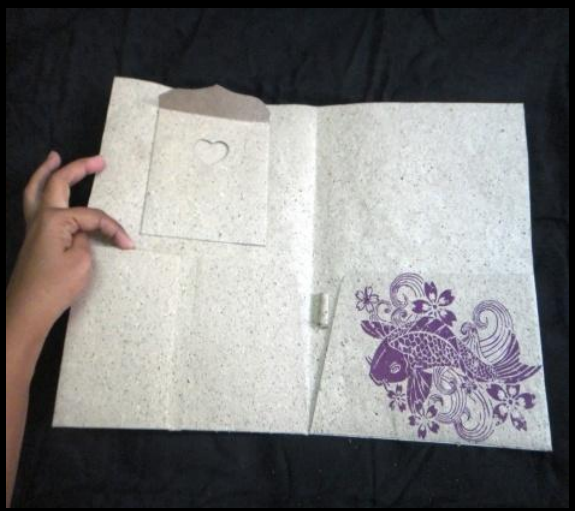
Pouch Type - II

Pouch Type - III

Folders



File Style - I



File Style - II

PLATE 22
EVERYDAY UTILITIES
MADE FROM WILLOW WASTE HANDMADE PAPER - III

Greeting/wedding cards

Carry Bags

Qulling using willow waste handmade paper

PLATE 23
VALUE ADDITION OF THE PREPARED PRODUCTS USING NATURAL FLOWERS - IV

Calendar

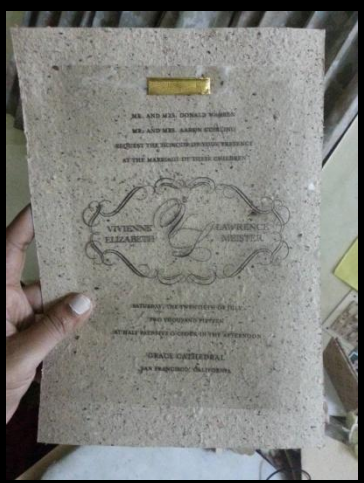
Photo frame

Flower vase (reversed and can be used as a lamp shade)

Bon-bon bag to hold scented rose petals

Carry bag using natural dyed willow waste handmade paper

Gift box



Invitation card

Jewel box

PLATE 24
VALUE ADDITION OF THE PREPARED PRODUCTS USING NATURAL FLOWERS







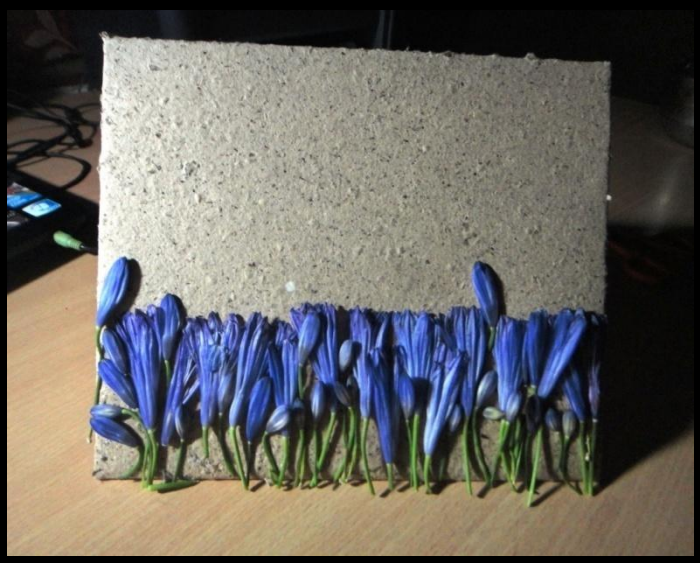





PLATE 25
FINISHING OF WIPES USING ALOE VERA AND LEMON SKIN ON THE PREPARED WILLOW WASTE HANDMADE PAPER

PLATE 26
IMAGES FROM THE FLUSHABILITY TEST FOR WILLOW WASTE WIPES

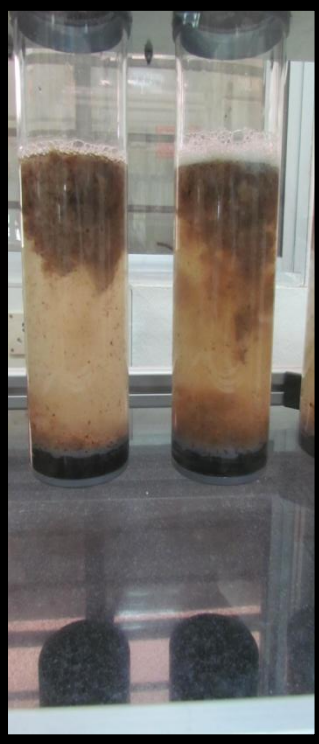


PLATE 27
PREPARATION OF WILLOW WASTE COMPOSTIES USING TAMARIND KERNAL POWDER (NATURAL RESIN) AND SYNTHETIC RESIN (POLYPROPYELENE)

PLATE 28
TESTING OF THE COMPOSITE SANPLES IN UNIVERSAL TESTING MACHINE

PLATE 29
PRODUCTION OF BRIQUETTES USING WILLOW WASTE (100%) AND WILLOW WASTE/COIR