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Traditional Natural Colour of Assam

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Abstract: People in the past always created somethingnew tofulfil their need. The great Vaishnava saint of Assam, Sri Sankardevabelonged in 14th (fourteen) century believed that "Beauty is God". Being a real artist he created some beautiful items *BrindabaniBastra* – A famous handloom textiles of the world in which life of Lord Krishna was depicted with prominent figure painted with artistic naturalcolour produced from plant source, mainly from bark, leaves, fruit, flower, roots etc. which was remain same till this century. At that period he created a special natural colour known as "*Mohi"* to write on Sanchipat and *Hengulhaital* colour for colouring of wooden instruments, walls, mukhasilpa, and boat. As it is considered as a the duty of young talents of our state to protect the uniqueness, greatness of SrimantaSankardeva's creation , an attempt was made to find out the traditional mechanism of natural dye specially in his period. The study showed that the basic colour of that period were mohi(bluish green ink) yellow arsenic(*haital),*vermillion (*hengul),* in eco- friendly methods.

Key words: Natural dye, hengul-haital, mohi, indigo etc.

Introduction

The art of dyeing is believed to be known in India as early as in the Indus valley period. Indians have been forerunners in the creation of natural dyeing. The people lived in Assam have excelled in a rich variety of arts and crafts encompasses handloom weaving, cane and bamboo works, wood work, brass and other form of Art.The plant kingdom present in the state are the most easily available dye sources and even the waste part of plant can yield natural colour. As recorded by *Dayalet al.1999*. India is the hub of diverse natural resources and the Indian flora is estimated to contain above 50,000 thousands species, including twenty thousands 20,000 vascular plants, 600 pteridophytes, 2,700 bryophytes, 5,000 algae, 20,000 fungi and 1,600 lichens and the highest numbers of dye yielding plants were available in North East India specially in Assam. Most of those plants can yield natural dye from any of its parts *viz.* stems, leaves, flower, seeds, rind, fruits, tings, barks and roots etc.

As in ancient time, there are no any synthetic dye for coloring of food, textile and other items people of every community of the state has their own tradition of weaving textiles dyed with indigenous natural colour. There were some taboos and occasion on which particular colour need to used(kar and Borthakur, 2008). The study deal with the oral traditions of natural dye production in Assam and existing documents and information of natural dyes practice of the state.
The objective of the study is to find out the traditional dye and dyeing method prevailing in Assam specially in the period of Sri SriSankardeva as he used different colours for different occasions such as writing manuscript in sanchipat, depicting the picture of Lord krishnaon the world famous *BrindabaniBasta*, weave in handloom of Assam, mukhasilpa for acting in religious play, colouring of alter in the name of God, colouring of boat etc. Attemptwas made on the reviewing wide varieties of literatures concerned with natural dye practice in Assam and its plant sources as it was feel an urgent need of preserving these plant materials so that they never become extinct with the availability of synthetic chemical dye in the market.

Methodology

In this study, different kinds of methodologies for completion of the research works have been adopted. Primary, secondary data collection and analysis have been adopted, resulting compilation of the evolution and practices of natural dyeing techniques.

As per research objectives, extensive survey on secondary sources of data regarding the

traditional methods of dyeing, sources of dye in different districts namely Dibrugarh,Tinsukia, Sivasagar, Jorhat ,Gulaghat, Nagoan and kumrup districts of Assam have been carried out for five months.

A descriptive survey was conducted using standardized questionnaires on 100 randomly selected respondents of different districts. Collected data were analyzed using descriptive statistics and cross case analysis. Investigator visited different satraofupper Assam and collected information regarding dye sources and indigenous method of natural dyeing.

Findings And Discussions

Study proved that ancient people, before the introduction of synthetic colours, used to dyed yarns by naturally available colours from their surroundings mainly from insect, tree barks, flowers, leaves, roots, fruits etc. People of Assam knew the art of dyeing from the very early times, which was mainly made by natural sources like lac, indigo, madder and other products. Lac dyeing was also a culture of ancient Assamese people. Currently Lac industries are found in Kamrup district in Assam, and the Khasi, Jayantia and Garo hills districts of Meghalaya. Some of the people created black, white, yellow and reddish pigments made from Ochre (a natural earth pigment) and it was used by primitive man in cave paintings to overss15,000 BC. Coloured robs dyed with Lac are very popular among eastern tribes of Assam.

Some of the natural dyes were well known in the past for their dyeing properties and have remained in use even now, albeit on a small scale. On the basis of survey and available literature total 175 numbers of dye giving plants found in Assam are listed below-

Dye Yielding Plants Of Assam

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Table 1. Dye/colour yielding plants of Assam.

Sl. No.	Common Name	Botanical Name	Family	Parts used
1	Red Al	*Morindacitrifolia*Linn.	Rubiaceae	Root, bark
2	Areca nut	*Areca catechu* Linn.	Palmecae	Fruit
3	Aloe vera	*Aleobarbadensis*Linn. Burm. F	Liliaceae	Whole plant
4	Beets	*Beta vulgaris* Linn.	Chenopodiaceae	Roots
5	Black Plum	*Syzygiumcumini*(Linn.) Skeels	Myrtaceae	Bark
6	Bouganvillea	*Bougainvillea spactabilis*Willd.	Nyctaginaceae	Flower
7	Cocks combs	Celosia cristata	Amaranthaceae	Flower
8	Cutch	*Acacia catechu* Willd.	Leguminosae	Wood
9	Dwarf Gulmohor	*Caesalpiniapulcherrima*Swartz.	Leguminosae	Red
10	European Madder	*Rubiatinctorum* Linn.	Rubiaceae	Bark
11	Four o-clock plant	*Mirabilis jalapa*Linn.	Nyctaginaceae	Flower
12	Goran	*Ceriopstagal* (Perr) C.B. Robins	Rhizophoraceae	Bark
13	Holly hock	*Alcearosea* Linn.	Malvaceae	Flower
14	Indian Laburnum	*Cassia fistula* Linn.	Leguminosae	Bark
15	Indian kino tree	*Pterocarpusmarsupium*Roxb.	Leguminosae	Bark
16	Jatikoroi	*Albiziaodoratissima*Benth.	Leguminosae	Stem bark
17	Kharpat	*Garugapinnata*Roxb.	Burseraceae	Leaves

Sl. No.	Common Name	Botanical Name	Family	Parts used
18	Indian madder	*Rubiacordifolia* Linn.	Rubiaceae	Bark
19	Onion	*Allium cepa* Linn.	Liliaceae	Dry skin
20	Palashlata	*Buteasuperba* Lam.	Leguminosae	Wood
21	Poppy	*Papaverrhoeas*Linn.	Papaveroideae	Flower Petal
22	Raddish	*Raphanussativus*Linn.	Cruciferae	Root
23	Ramphal	*Anonareticulata* Linn.	Anonaceae	Fruit
24	Rangaphalia Gach	*Poinsettia pulcherrima* Graham	Euphorbiaceae	Leaves
25	Ratanjot (Golden drops)	*Onsomaechioides*C.B	Boraginaceae	Root
26	Red chilli	*Capsicum annum* Linn.	Solanaceae	Fruit
27	Red Sandal	*Petrocarpusantalinus*Linn.	Leguminosae	Wood
28	Rangapalash	*Buteafrondosa*Roxb.	Leguminosae	Wood
29	Red ceder (Urium)	*Bischofiajavanica*Blume.	Euphorbiaceae	Bark/root
30	Sal tree	*Shorearobusta*Gaertn.	Dipterocarpaceae	Bark/Fruit
31	Safflower	*Carthamustinctorius* Linn.	Compositae	Flower
32	Sappon wood	*Caesalpiniasappon* Linn.	Leguminosae	Heart wood
33	Senduripoma	*Cedrelatoona*Roxb.	Meliaceae	Flower
34	Paradise flower (Swarnakanti) Blue	*Caesalpiniapulcherrium*Swartz.	Leguminosae	Flower
35	Assam Indigo	*Indigoferatinctoria*Linn.	Strobilanthescusia	Twings
36	Butter fly pea	ClitoriaternateaLinn	Fabaceae	Flower
37	Indigo	*Indigoferatinctoria*Linn.	Leguminosae	Leaves
38	MithaIndrajau	*Wrightiatinctora* R.Br.	Aocynaceae	Leaves
39	Mithaneem	*Murrayakoenigii*	Rutaceae	Bark
40	Maple	*Acer* species	Sapindaceae/ Aceraceae	Bark
41	Water Lily Yellow	*Nymphaeaalba.*Linn.	Nymphaea	Rhizomes
42	Achu	*Morindaangustifolia* Linn.	Rubiaceae	Root
43	Alkalbir	*Datiscacannabina*Linn.	Datiscaceae	Root
44	Monkey jack	*Artocarpuslakoocha*Roxb.	Arocarpaceae	Fruit
45	Bay berry	*Myricanegi*Thunmb.	Myricaceae	Fruit
46	Basaka	*Adhatodavasica* Ness.	Acanthaceae	Leaves
47	Bel tree	*Aegelemarmelos* Linn.	Rutaceae	Fruit
48	Belericmyrobalan	*Termilainiabellerica*Roxb.	Combretacea	Fruit
49	Bhumlati	*Symplocosspicata*Roxb.	Symplocaceae	Bark
50	Champaka	*Mecheplicachampaca* Linn.	Magnoliaceae	Flower
51	Chucipoma	*Maesachisia*Wall.	Myrsinaceae	Bark
52	Coral Jasmine	*Nyctanthesisarboritis*Linn.	Oleaceae	Flower
53	Cotton	*Gossypiumherbaceum* Linn.	Malvaceae	Fresh flower paste

Sl. No.	Common Name	Botanical Name	Family	Parts used
54	Crape Jasmine	*Ervatamiacoronaria*Stapf.	Umbrelliferae	Seed pulp
55	Dhauri	*Woodfordiafruticosa*(Kurz.) Linn.	Lythraceae	Flower
56	Drumstick	*Moringapterygosperma*	Moringaceae	Leaves
57	Eucalyptus	*Eucalyptus globules* Labill.	Myrtaceae	Bark
58	Flame of forest	*Buteamonosperma* Linn.	Leguminosae	Flower
59	Forest piper	*Toddaliaasiatica* Linn.	Rutaceae	Roots and bark.
60	*Guldaudi*	*Chrysanthemum indicum*Linn.	Asteraceae	Flower(s)
61	Haital	*Phoenix paludosa*(L.) Roxb.	Palmaceae	Resinous gum
62	Jackfruit	*Artocarpusintegrifolia* Linn.	Moraceae	Wood and root
63	Kaiphal	*Myricacitrifolia*Roxb.	Myriaceae	Bark
64	Nagatenga	*Miricanegi*Thunb.	Myriaceae	Bark
65	Kala inderjau	*Wrightiatomentosa*Roem and Schult.	Apocynaceae	Bark
66	Kamala	*Mollotusphillippensis*Muell. Arg.	Euphorbiaceae	Fruit
67	Kath haladhi	*Berberisaristata*DC.	Berberidaceae	Root
68	Kilmora	*Berberine*sp.	Berberidaceae	Roots
69	Kujithekerra	*Garciniamarella*Derr.	Clusiaceae	Gum of ripe fruit
70	Mango	*Mangiferaindica* Linn.	Anacardiaceae	Bark
71	Marathi haldi	*Garciniaspicata*Hock.f.	Guttifera	Bark
72	Mithamahua	*Madhuca indica* J.F. Gmel	Sapotaceae	Bark
73	Nagkeswar	*Mesuafera*Linn.	Guttiferae	Flower
74	Naga bhumlati	*Symplocosferruginea*Roxb.	Symplocaceae	Bark
75	Kum dye	Pasaniapachyphyla (Kurz) Schottky	Fagaceae	Bark
76	Pomgranate	*Punicagranatum* Linn.	Lythraceae	Fruit
77	Pink bauhinia	*Bauhinia purpurea* Linn.	Leguminosae	Bark
78	Radhachura	*Delonixregia*Ref.	Acsalpiniaceae	Flower
79	Rangal or Ixora	*Trifoliumpratense* Linn.	Rubiaceae	Flower
80	Rubber plant	*Ficus elastic* Roxb.	Moraceae	Leaves
81	Saffron Crocus	*Carocus longa* Linn.	Iridaceae	Flower
82	Sickle Senna	*Cassia tora* Linn.	Leguminosae	Seed
83	Sun flower	*Helianthus tinctoririus*Linn.	Asteraceae	Flower
84	Tamarind	Tamarindus indica	Leguminosae	Leaves
85	Turmeric	*Curcuma longa*Linn	Zingiberaceae	Roots
86	Yellow teak	*Adina cordifolia*Roxb.	Rubiaceae	Heart wood
87	Yellow jasmine	*Jasminumhumile* Linn.	Oleaceae	Root
88	Zinnia	*Zinnia elegans*	Daisy	Flower
89	Dahlia	*Dahlia* species	Compositae	Flower
90	Marigold	*Tageteserecta*Linn.	Compositae	Flower

Sl. No.	Common Name	Botanical Name	Family	Parts used
91	Pumpkin	*Cucurbita maxima* Duch.	Cucuritaceae	Fruit
91	Teak (sagoon)	*Tectonagrandis* Linn.	Verbenaceae	Bark
92	Togar	*Ervatamiadivaricata*Linn.	Apocyaceae	Seeds
93	Tam tingali	*Symplocosoxyphylla*Wall.	Symplocaceae	Leaves and stem
	Brown			
94	Acalypha	*Acalyphawilkaseana*Linn.	Euphorbiaceae	Leaves
95	Amla	*Emblicaofficinalis*Geartn.	Euphorbiaceae	Fruits
96	Arjun	*Terminaliaarjuna*Roxb.	Combretaceae	Bark
97	Indian madlar	*Mimusopselengi* Linn.	Leguminosae	Bark
98	Babool	*Acacia arabica*Willd.	Leguminosae	Bark
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99	Plantain (Banana)	*Musa paradisiac*Linn.	Musaceae	Stem
100	Black sisir	*Albiziaodorantissima*Benth.	Leguminosae	Bark
101	Banyan tree	*Ficusbengalensis*Linn.	Moraceae	Leaves
102	Ber	*Ziziphus jujube* Mill.	Rhamnaceae	Bark
103	Ban bogori	*Pterospermum lanceaefolium*Roxb.	Rhamnaceae	Leaves & bark
104	Black plum	*Syzygiumcumini* Linn. Skeels.	Myrtaceae	Bark.
105	Carambola	*Averrhoacarambola*Linn.	Oxalidaceae	Bark
106	Carrot	*Daucuscarota*Linn	*Apiaceae*	Roots
107	Custard Apple	*Anonasquamosal* Linn.	Anonaaceae	Fruit
108	Cochin goroka	*Garchiniaxanthochymus*H.K.f	Guttiferae	Bark
109	Coffee	*Coffeaarabica*Linn.	Rubiaceae	Beans
110	Chebulic Myrobalan	*Terminaliachebula* Retz.	Combretaceae	Fruit
111	Ginger	*Zingiberofficinale*	Zingiberaceae	Rhizome
112	Gallnut (oak tree)	*Quarcusinfectiria*	Fagaceae	Bark
113	Garden balsam	*Impatiens balsamina*Linn.	Balsaminaceae	Flower
114	Golden dock	*Rumexmaritmus*	Rubiaceae	Seed
115	Hamelia	*Hameliapatens*	Betulaceae	Leaves
116	Hog plum	*Sapondiasmangifera*Willd.	Anacardiaceae	Fruit
117	Indian persimmon	*Diospyros peregrine* Gurk.	Ebenaceae	Fruits
118	Jeera	*Cuminumcyminum* Linn.	Apiaceae	Fruits
119	Kanchan	*Bauhuniavariegata* Linn.	Leguminaceae	Bark
120	Kikar	*Acacia nilotica*Linn.	Leguminaceae	Leaves
121	Kharial	*Parkiaroxburghil G. Don*	Leguminaceae	Wood
122	Kohir	*Brideliaretusa*	*Euphorbiaceae*,	Stem bark
123	Litchi	*Litchi chinesis*Sonn.	Sapindaceae	Leaves
124	Machmai	*Tremaorientalis*Blume.	Ulmaceae	Stem bark
125	Neem	*Azadirachtaindica*A. Juss.	Meliaceae	Leaves

Sl. No.	Common Name	Botanical Name	Family	Parts used
126	Peach	*Prususpersica*Linn.	Rosacae	Bark
127	Pipal	*Ficusreligiosa* Linn.	Moraceae	Leaves
128	Purple lady	*Telantheraficoidea*Linn.	Amaraenthacea	Roots
129	Red silk cotton	*Bombaxmalabaricum*DC. Mod.	Bombacaceae	Flower
130	Rein wardita	*Rein warditatrigania*Dumort.	Linaceae	Gummy sap
131	Rangachandan	*Pterocarpussantalinus*	Leguminaceae	Bark
132	SingaPuspi	*Phiogacanthusthyrsiflorus*Nees.	Acanthecanthus	Leaves
133	Tea	*Cameliasinensis*Linn.	Theaceae	Flower
134	Titasopa	*Micheliachampaca* Linn.	Magnoliaceae	Fruits
135	Tobacco	*Nicoliana*spp.	Solanaceae	Bark
136	Weeping willow	*Salix babylonica*	Salicaceae	Wood & bark
137	Orange Annatto	*Bixaorellana* Linn.	Bixaceae	Bark
138	Agnijalwa	*Woodfordiafruticosa* Kurtz. Linn.	Lythraceae	Flower
139	DhaiphoolGangai	*Mullotusphillippensis*	Euphorbiaceae	Ripe fruit
14 0	Lily	*Convallariamajalia*Linn.	Liliaceae	Leaf
141	Ushahul	*Impatiens balsamina*Linn.	Balsaminaceae	Stem and leaves
142	Orange Cosmos	*Cosmos sulphureus*	Compositae	Flower
143	Henna	*Lowsoniainermis*Linn.	Lythaceae	Leaves
144	Saffron	*Crocus sativus*Linn.	Ieridacea	Flower
145	Indian spinach	*Basella alba*	Chenopodiaceae	Roots
146	Lichen	*Lasallia postulate*	Ascomycetes	Whole fungus
147	Mushroom	*Boletopsisgrisea*	Amantiaceae	Whole plant
148	Senduripoma	*Cedrelatoona*Roxb.	Meliaceae	Flower
149	Purple basil	*Ocimumtomentosum*Lam.	Lamiaceae	Flower
150	Rose	*Rosa* species	Rosaceae	Flower
151	Spiny amaranth	*Amaranthusspinosus* Linn.	Amaranthaceae	Root
152	Choclate Mangrove Green	*Rhizophoreamucronata*Lam.	Rhizophoraceae	Bark
153	Algae (green)	*Pediastrumboryanum*	Chlophyta	Whole body
154	Bottle brush	*Callistemencitrinus*	Myrtaceae	Flower
153	Broccoli	*Brassica oleracea*Linn.	Cruciferae	Flower
154	Datura	*Datura (fastusa) stramonium*Linn.	Solanaceae	Leaves
155	Drumstick	*Moringaoleifera*Lam.	Moringaceae	Leaves
156	Keharaj	*Eclipta alba* Hassak.Linn.	Compositeae	Whole plants
157	Lettuce	*Lactucasativa* Linn	Asteraceae	Leaves
158	Water Lily	*Nymphaeapubescens*Willd	Nynphaeaceae	Flower

Sl. No.	Common Name	Botanical Name	Family	Parts used
159	Nara singha	*Murrayakoenigii*Linn.	Rutaceae	Leave
160	Pea	*Clitoriaternatea* Linn	Leguminaceae	Stem
161	Papaya	*Papaya carica*Linn.	Caricaceae	Leaves
162	Spinach	*Spinacia*spp.	Chenopodiaceae	Leave
163	Tulsi Purple	*Ociumumtenuiflorum*Linn.	Labiatae	Leaves
164	Chinna Rose	*Hibiscus rosasinensis* Linn.	Malvaceae	Flower
165	Cactus	*Cereus peruvianus*Juss.	Cactaceae	Pad with bugs
166	Flower Puroi	*Basella alba* Linn.	Basellaceae	Seed
167	Red Cedar	*Juniperrusvirginiana*Roxb.	Euphorbiaceous	Root
168	Bush tomato Black Dye	*Solanumindicum*Linn.	Solanaceae	
169	Borhomthuri	*Talaumahodgsoni*	Magnoliacae	Stem
170	Bottle gourd	*Lagenariasiceraria*	Cucurbitaceae	Fruit
171	Cassic flower	*Acacia farnesiana*Willd.	Leguminosace	Bark
172	Cachew nut tree	*Semecarpusanacardium*	Anacardiaceae Linn.	Fruit
173	Indian hemp	*Apocynumcannabinum*	Apocynum	Whole plant
174	Jungle amli	*Aleuritemolucaccana*Willd.	Euphorbiaceae	Roots
175.	Phutuka	*Melestomamalabathrium*Linn.	Melestomataceae	Fruit

For centuries the people of Assam, used those plants for production of different colour or dye which required to be used in different purposes. It is noted that there are more that 240 numbers of natural dye yielding plants in North Eastern region of India, among which most of them are found in Assam.(Gogoi, M.2016)

The methods used in dyeing were carefully guarded secrets, passed on orally. But about the 16th century, many groups of dyers and different forms of organizations began to keep written records giving a clear picture of art of the dyeing at that time. The methods had remain unchanged for at least 1,500years.

Traditional dyeing Process:

Primitive dyeing techniques included sticking plants to fabric or rubbing crushed pigments into cloth. The methods became more sophisticated with time and techniques using natural dyes from crushed fruits, berries and other parts of plants, which were boiled into the fabric and gave light and wash fastness (resistance), were developed. But there is no any written record on dye extraction and dyeing process and the people those who know the method as traditional practice of family or the particular community they do not want to disclose or teach the procedures to others, the practices are confined within their own communities.

The great Vaishnava saint, Sri Sankardeva belonged in fourteen century prepared a very big and unique and world famous handloom textiles items "*BrindabaniBastra* " in which life of Lord Krishna was depicted with prominent figure painted with artistic natural colour produced from plant source, mainly from bark, leaves, fruit, flower, roots etc, which was remain same for more than five century.Unfortunately, there is no proper photo or written documentation, no written resources in well- structured forms and or proper coloring procedures and its availability in regards to our state Assam.

At that period he also created a special natural colour known as "*Mohi"* to write on xansipatand *Hengulhaital* for colouring of xansipaat, wooden instruments, walls, mukhasilpa, and for decoration of boat.

The study also showed that "*Mohi*" has a fast and deep colour and uses cow urine along with other herbal materials; it has little aerial oxidation and is also resistant to fungi. The *xansipaat* manuscripts, written with mohi, exist from the seventh century and were gifted to Harshavardhan.The non-destructive nature of the ink has been proven by the centuries-old *xansipaat* (cellulose folios made of the bark of xansi tree, (*Aquilariaagallocha*) manuscripts that still exist in Assam, without losing the glaze of ink. They stand testimony to a rich literary and socio-cultural heritage and hold the secret of ink formulation.

Preparation of Mohi:

The ingredients used in *mohi* are fruit pulp of xilikha (*Terminaliachebula*), amlakhi(*Emblicao - fficinalis*) and bhomoraguti (*Terminaliabelerica*), bark of xilikha, bhomora, mango , *jamuk* (*Eugenia jambolana*), *bahat* or monkey jack (*Artocarpus - lakoocha*) and the whole herbs of *keharaj* (*Eclipta alba*), *bar manimuni* (*Centellaasiatica*) and *sharumanimuni* (*Hydrocorylrotundifolia),* all mashed together and soaked in cow urine in earthen pots (with small holes underneath) during winter. Winter was the chosen season as decomposition of the dyes occurs faster. "The raw materials varied depending upon availability and usually a red hot iron tool was dipped into the mixture for extracting iron. Rust from iron nails, blood of *kuchiya* (*Monopteruscuchia,* a kind of eel) or *hirakoch*(Pangasiussutchi, a kind of catfish) are also added. Drops of clear *mohi* percolate through the bottom of the earthen pots in nine to 10 days and are used as ink. (Goswami.T.2012 & Rajkhowa.T.2016)

In present studies on *Mohi*goes on different institute it has been proved that the majorphyto-chemical constituents in *mohi* are phenolic acids, flavonoids, tannins and it has been observed that a small amount of iron sourced from rusted iron form a complex with these constituents that intensifies the colour of the ink, imparting an intense black hue and giving it resistance to high humidity in the region.

The *xansipaat* manuscripts, written with *mohi,* are free from destructive effects of acid hydrolysis, oxidative decomposition and fungus, enabling them to survive for centuries in harsh climate, unlike paper manuscripts written with IGI (iron gall ink). The constituents also emit a fluorescent glow

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Preparation of Hengul –haital:

At the period of Srimanta Sankardeva Hengulhaital (red and yellow) colour were extracted from safflower (*Carthamustinctorius* Linn.) and bark of haital (*Phoenix paludosa*(L.) Roxb., blue colour from indigo or rom plant and white from dholmati.

As the *hengul and haital* plant became extinct, people started to use mineral colour i.e red arsenic with vermillion and gum from wood apple. The mineral colours are grounded in mortar and this takes around a week's time. Earlier this whole process used to take around a one to one and a half months time. The more the colours are grounded, the more it shines and the quantity also increases.

Plate: Extraction of hengulcolour from red arsenic.

But now a days as extraction of thecolour is strenuous and the process is very time consuming, as due to the availability of commercial paints in the market, the use of mineral colour has dwindled to a large extent.

Preparation of Indigo (Rom) Dye

Another dye indigo called *Rom,* which is also prepared and used to make a very dark blue similar to black specially for lower garment and ritual cloth used at the time of funeral ceremony of Shyampeoples. Indigo (*Strobilanthescusia*) bearing plants are there in most of the Shyam households from the ancestral time.The vat dyeing technique is specially for dyeing Assam Indigo

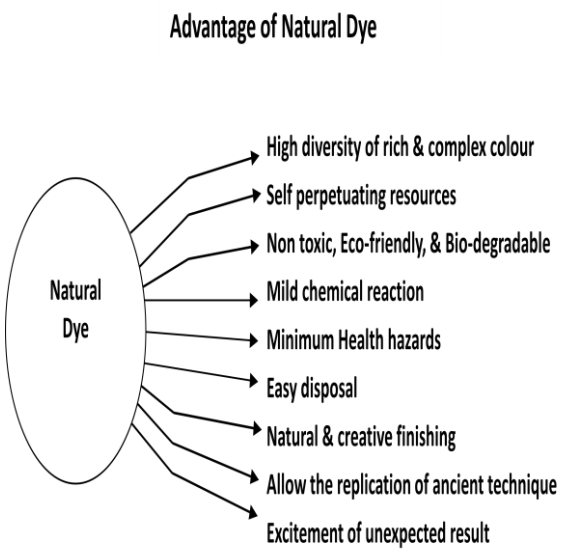
(Rom).Indigo leaves or power gives a deep blue colour on wool, silk, cotton textiles. Dye bath need tokept in a large vessel for overnight, called vats, wooden vats, earthen pots were used in the early days, which were buried in the ground to maintain the temperature, so that the vat was not disturbed.

The traditional dye making process is still surviving in ShyamGaon-Betbari. The traditional or indigenous dyeing method followed by them is passed on by elders into their family, generation by generation. Among the Shyam tribes, the dyeing is mainly done by female members and passed to the next generation.

Discussion

Natural dyes were practiced almost every part of the world from the early times, which was passed from generation to generation orally. In India, up to the end of the 19th century natural dyes were the main colorants for textiles. India, synthetic dye industries has been considered as one of the seventeen most polluting industry in the country by Central Pollution Control Board(CPCB). Hence there is urgent need to revive traditional method of natural dye.

In struck contrast natural dye has the following advantages.



The practice of natural dyeing has been significantly decreasing due to the less awareness of systematic identification of plant and few insect sources and extraction process.The introduction and easy availability of synthetic dyes at lower price, led to an almost complete replacement of natural dyes.The handicrafts workers of the region are utilizing readily available cheap synthetic dyes on their woven fabrics and people of Assam slowly forgot the use and practice of dyeing with natural dyes for textile fibres, food, other house hold product.People became interested on wide range of available colours, higher reproducibility and improved quality of dyeing could be achieved at lower specific cost.Tragically, chemical dyeing can cause significant environmental degradation and harm to workers if not handled properly. In short, toxic chemicals are absorbed into the skin of workers when they come into prolonged contact with synthetic dye, and that dye is most easily absorbed into skin when a worker's body is warm, when pores are open.

Conclusion

Traditionally, natural dyes were made with natural pigments mixed with water and oil used to decorate skin, jewellery and clothing and the ancient people were much more colourful than of we imagine. At that period,natural dyed fabrics were used as aesthetic value, symbolic power,and therapeutic functions.In present context,the world isbecoming more conscious towards ecology and environment.And the sustainable fashion want to reopen the natural dyed fabrics in view of its unique qualities specially UV protection property, there is need to revive the traditional vanishing culture of natural dye and dyeing techniques as an alternative of hazardous synthetic dyes. Today, we expect proper documentation of natural dye sources, processing technique, importance, varieties of colour producefrom different source of dye and alsopreserving the living cultural knowledge of our ethnic tribes orpre Aryan indigenous people.

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