

## Use of traditional knowledge to dye grey-sedge (*Lepironia* Rich.) in Southern Thailand

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Received 30.10.13, revised 09.12.13

Grey-sedge is used to produce local handicrafts in Southern Thailand. This qualitative research examines the practices of handicraft production in ten local artisan groups. Data is collected from document study and field research using basic survey, observation and interviews with ninety five respondents. The particular focus of the investigation is on the traditional knowledge used during the dyeing stage of handicraft production. The research results show that each group employs slightly different dyeing techniques based on the local knowledge of their community. From combination of the practices used, the research team determined that the most efficient dyeing technique for sedge strands is boiling in a mix of water, dye, salt and vinegar in stainless steel containers. The strands should then be cleaned and hung to dry before being incorporated into the product transformation process. The optimum dyeing time is 3-4 minutes.

**Keywords:** Sedge, *Lepironia* Rich., Dye, Traditional knowledge, Thailand

**IPC Int. Cl.<sup>8</sup>:** C09B 61/00, B27K, D06P, D06B, A61K 36/00, D01

The Thai Government has placed huge importance on the development of traditional knowledge for strengthening the national economy<sup>1</sup>. Southern Thailand is a region of the country with vast, fertile natural resources that have been harnessed through the implementation of traditional knowledge to manufacture local products and respond to the Government impetus. One such resource is sedge (*Cyperaceae*) and in particular grey sedge of the *Lepironia* Rich. genus (Fig. 1)<sup>2</sup>. The principal factor that facilitated the development of grey-sedge handicrafts in the South of Thailand was the surrounding environment. Dyeing was able to develop in the Southern provinces because of the tropical rainforest climate (*Af*) and the integration of local sedge handicrafts in the everyday lifestyle. *Lepironia* grew naturally near the communities, which the locals used and adapted as products for their everyday lives. With the arrival of trade and commerce, the reasons for production shifted as locals realised how handicraft sales could benefit the local economy<sup>3</sup>. The sedge is now transformed into hats, bags and baskets and sold to locals and tourists alike (Fig. 2).

The sedge plants must be prepared before they can be used to make the products of Southern Thailand. The stages of preparation include sizing, binding, drying, resting, flattening and dyeing<sup>4</sup>. The stages of preparation are represented below in Figs 3 A-F. Dyeing is an important stage of preparation, as it gives character to the sedge stalks prior to transformation. Coloured powders favoured in the dyeing process are red, green, yellow, and purple. In the past, natural dyes were used. The dyes were created from natural products in the surrounding environment, such as the flower of the Butterfly Pea, *Clitoria ternatea* (purple), turmeric, *Curcuma domestica* (yellow) and burnt coconut shell (brown). Nowadays, basic synthetic dyestuffs are used<sup>5</sup>. Although dyeing is a vital part of manufacture, the dyes used in production have been found to harm the local environment, thus negating the positive effects that the traditional knowledge has in creating a self-sufficient economy<sup>6</sup>. In light of this, the following research paper documents the sedge dyeing methods used by communities in the South of Thailand in order to give a more detailed picture of the practices as a tool for further research in the field.

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Fig. 1—'Grey Sedge' (*Lepironia*)



Fig. 2—Transformed sedge baskets

### Methodology

This qualitative research investigated 10 handicraft groups in the Southern provinces of Thailand. The sample was selected using a simple random sampling technique based on the design of Manat Suwan<sup>7</sup>. The groups chosen were as follows:

- 1 Ban Ton Grey-Sedge Production Group, Moo 5, Kok Kien Sub-District, Narathiwat Province
- 2 Ban Bueng Pichai Professional Grey-Sedge Weaving Group, Moo 3, Kuan Lang Sub-District, Songkhla Province
- 3 Mae Ban Kasetakorn Blaidrok Ruamjai Group, Moo 9, Taley Noi Sub-District, Phatthalung Province
- 4 Grey-Sedge Production Group, Moo 2, Taley Noi Sub-District, Phatthalung Province
- 5 Ban Khok Mao Grey-Sedge Production Group, Moo 8 Taley Noi Sub-District, Phatthalung Province
- 6 Ban Kuan Bom Professional Grey-Sedge Production Group, Moo 1, Kreng Sub-District, Nakhon Si Thammarat
- 7 Ban Kuan Yao Grey-Sedge Product Transformation Group, Moo 3, Kreng Sub-District, Nakhon Si Thammarat Province
- 8 Ban Noen Thammang Grey-Sedge Group, Moo 5, Mae Jao Yu Hua, Nakhon Si Thammarat Province
- 9 Ban Huay Leug Community Grey-Sedge Weaving Handicraft Corporation, Moo 6, Tasaton Sub-District, Surat Thani Province
- 10 Wat Patnaram Grey-Sedge Weaving Group, Moo 3, Taruea Sub-District, Surat Thani Province

The research population was determined using a purposive sampling technique and was composed of 95 individuals. The key informants were academics, teachers, local community members and production group leaders. The casual informants were manufacturers in the 10 production groups. The general informants were traders and consumers. Data was collected by document study and field research, using tools of basic survey, non-participant and participant observation and structured and non-structured interviews. The interviews were based on the dual model of Songkoon Chantachon<sup>8</sup>. The first part of the interview was used to collect general personal data about the respondent. The second part of the interview was composed of questions about local traditional knowledge of grey-sedge product creation, local resources and problems. Data was also collected from a series of focus group discussions involving 6-9 people. After all data had been collected, it was validated using the principles of triangulation outlined by Supang Chantavanich<sup>9</sup>. Four methods of triangulation were performed: data triangulation, investigator triangulation, theory triangulation and methodological triangulation. A descriptive analysis was then conducted. The study began in October 2011 and lasted for one year, until October 2012.

### Results

The dyeing stage of grey-sedge preparation for transformation into products differs by group and location. Dyeing is extremely important because it gives the product a unique identity and can be



Fig. 3—A – Sizing of grey sedge plants in preparation for production; B – Tools used for mud binding; C – Sedge bundles drying in the sun; D – Dried sedge resting; E – A sedge-flattening machine; F – Dyed sedge stalks

integrated to pattern designs (Fig. 4). Ban Bueng Pichai Professional Grey-Sedge Weaving Group and Ban Khok Mao Grey-Sedge Production Group use similar methods. The sedge is dyed in boiling dye water before being hung and dried. There are no extra techniques of flattening or cleaning. However, the remaining eight groups adopt unique and slightly different dyeing procedures.

The locals in the Ban Ton Grey-Sedge Production Group arrange and group the dried sedge stalks by natural colour before they are dyed and transformed into the final product. One grey-sedge plant is taken to make three bundles, which are dyed one at a time. The dyeing process makes use of colour dye, a water kettle, a wooden rod for suspending the dyed strands, a wooden stick and water for cleaning the strands after dyeing. There are six stages in the dyeing process. The water and dye mix is brought to boiling point. Then, the sedge stalks are added to the water and left for 3-4 minutes. After 3-4 minutes have elapsed, the strands are removed from the water and hung. Any excess dye mixture is removed from the strands using clean water. The stalks are placed in the wind to dry thoroughly (Fig. 5). Finally, the stalks are flattened again (having already been flattened once prior to dyeing). The Ban Ton Community has better results of product dyeing than other groups because it uses Asam Geluger (*Garcinia atroviridis*

Griff.) in the dye mixture<sup>10</sup>. This prevents the dye from fading in the sun.

In Mae Ban Kasetakorn Blaidrok Ruamjai Group, the sedge products are dyed and then taken to dry in the sun or wind. Prior to the dyeing process, the strands are cleaned thoroughly and sundried. A metal pot is used for the dyeing, preferably stainless steel. This will ensure protection against rust, which could alter the colouration of the dyed strands<sup>11</sup>. The dyeing process of Mae Ban Kasetakorn Blaidrok Ruamjai Group has seven steps. The sedge strands are flattened, cleaned and dried. Three tablespoons of dye powder are added to a 10 L drum of water and boiled for 20 minutes. The sedge strands are then added and boiled for a further twenty minutes. The resulting coloured strands are dried before being bundled together. The dried sedge strands are finally taken to be flattened before product transformation.

In the Grey-Sedge Production Group, the sedge strands are boiled in the dye water for 5 minutes before they are assessed. If it is decided that the dyeing is complete, the strands are lifted and hung to be cleaned twice. In each batch of dyeing, the time will be equal to ensure that the same levels of dye are absorbed. The strands are then dried in the sun.

Traditional knowledge is used by Ban Kuan Bom Professional Grey-Sedge Production Group and Ban Noen Thammang Grey-Sedge Group throughout the





Fig. 4—The use of colour in grey-sedge products

dyeing procedure. The sedge strands that have been selected, bound and dried will be cleaned before the dyeing process, so to remove excess mud bonding. The strands are dyed in small bunches, which are split further into four and each minor bunch is folded before being submerged in the dye water. The sedge is dyed in small portions because large portions will cause the dye to be spread unevenly and insufficiently cover the stalks. Bowls or drums are used for dyeing. Water is brought to the boil in the drum over a coal stove and chemical dyes are added. The dye is allowed to mix with the water and a little vinegar and salt are added to protect against colour running. The sedge is submerged and left in the dye mixture for 5 minutes, before being washed in clean water twice. The strands are then hung to dry and rolled so that they are dry, soft and ready for weaving. For the production of bags and baskets, the sedge strands must be shaped before the drying process. The sedge must not be left outside overnight because mould could grow on the strands and ruin them.

Ban Kuan Yao Grey-Sedge Product Transformation Group soak their sedge in water before the dyeing process and they also use a wooden stick to stir the sedge in the dye and ensure that the colour coverage is complete. Ban Huay Leug Community Grey-Sedge Weaving Handicraft Corporation divide their sedge crop into bundles of 20-25 stalks and also soak their sedge in water before dyeing. The sedge is boiled in the dye for 15-20 minutes and, after being removed, is cleaned thoroughly to remove excess dye. The dyed sedge is taken to dry in the sun and, once dry, is flattened in preparation for product transformation.



Fig. 5—Dyed sedge strands hung up to dry

It is popular for Wat Patnaram Grey-Sedge Weaving Group to use green, blue, orange, fuchsia and purple dyes (Figs 6 A-D). Basic dyestuff is considered best by the group for use in dyeing sedge because it is easily and rapidly absorbed. This is also a particularly bright and full coloured dyestuff that is resistant to fading in the sun. The problem is that it is not durable when washed or rubbed. The Wat Patnaram Group uses two types of strand for dyeing. The first is bleached sedge strands and the second is raw sedge strands or strands that have been coloured by the sun. The bleached strands are best for strong and bright coloured dyes.

There remain problems with the dyes, especially in the disposal of the dye water after production. The dyes are chemical dyes and should be handled with caution. However, many workers do not follow the advice they have been given by the Government authorities, such as using gloves, and the chemical dyes will have an effect on their long-term health (Figs 7 A & B)<sup>12</sup>.

### Discussion

The dyeing process is used in the production of grey-sedge handicraft products so that the goods have outstanding patterns, fine design and added value. Before dyeing, the sedge strands should be washed and dried. The materials used in the dyeing procedure are sedge dyes, stainless steel container or metal pot to protect against rust, hanging rod for drying, wooden stick for lifting the sedge strands from the water, clean water for cleaning the strands. The dye recipe for 1 kg of sedge is 3 of water, 2 gm of salt, 2 centilitres of vinegar and 3-4% dye. Using this

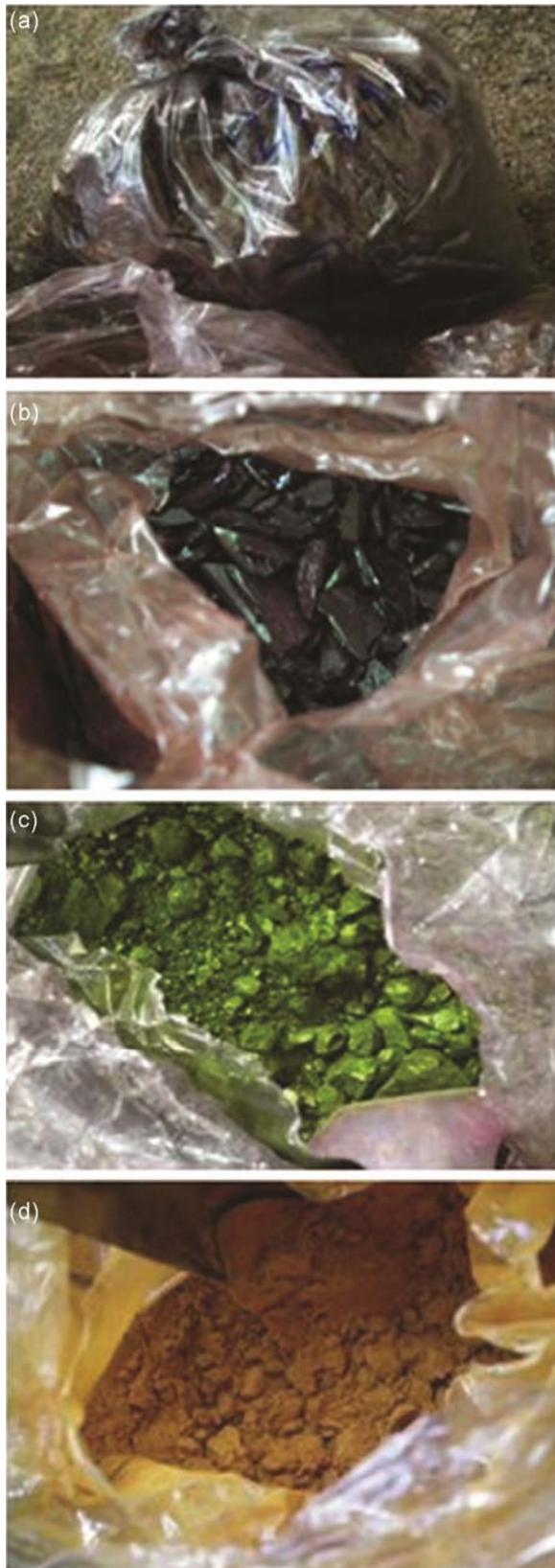


Fig. 6—Dye powders: A – Blue; B – Purple; C – Orange; D – Green



Fig. 7—A & B: The effect of dyes on artisans

recipe it should take about 3-4 minutes for the sedge to be dyed. There are problems with the use of dyes, including harmful effects on the environment and artisans. This is an area for future research and by eliminating the use of chemical dyes or by educating locals into their proper handling, the artisans will greatly benefit.

The researchers make five suggestions to improve the dyeing of grey-sedge (*Lepironia Rich.*) in Southern Thailand:

- 1 The inclusion of Asam Geluger (*Garcinia atroviridis* Griff.) in the dyeing process will reduce colour fading.
- 2 The length of time take to boil the sedge strands in the dye mixture must be consistent for each batch. This will ensure that the level of colour is uniform.
- 3 The length of time take to clean the sedge strands after dyeing must be consistent for each batch.

This will ensure that the level of colour is uniform.

- 4 The sedge strands must be thoroughly dried after dyeing by the sun or wind before being processed further.
- 5 For effective dyeing, two people must be involved in the dyeing process.

### Conclusion

Having once been used to create items for everyday use in the household, locally sourced grey-sedge is now part of a governmental drive to increase community income by application of traditional knowledge. The dyeing stage of grey-sedge preparation is a vital segment of an ancient handicraft procedure that adds identity and value to local products. This value and identity can be further increased by ensuring standard and consistent dyeing practices are maintained with each grey-sedge batch.

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