

An integrated approach to the conservation of a Minangkabau headdress

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Background

The Minangkabau, from the highlands of West Sumatra in Indonesia, are one of the world's most unique cultures – they are a Muslim matrilineal society and heirlooms like jewellery and headdresses, are passed down the female line [1]. Fig. 1 shows an example of a ceremonial headdress worn by a Minangkabau woman. At the center of our discussion is the conservation of an early 20th century Minangkabau headdress from the village of Solok (Fig. 2). Though structurally intact, the headdress displays signs of use; losses and previous repairs. While conservation treatment was undertaken, scientific analysis of different materials of the headdress was also pursued to understand the compatibility of materials for its preservation.

Artefact Construction

Consisting of two repoussé hinged metal panels, the top panel is decorated with floral sprigs. The shape of the lower panel mimics roof gables of traditional Minangkabau houses (Fig. 2a). A row of cone-shaped embellishments dangle along the bottom. Two textiles line the back of the headdress; a European chintz and brocade with a decorative supplementary weft employing a metal foil (Fig. 2b). In between the metal and textile lining lies an unknown black substance, probably used as 'chasers pitch', an adhesive or base for metal pounding.



Fig. 1 Woman wearing a Minangkabau Headdress (Collection Nationaal Museum van Wereldculturen. Coll.no. TM-10002799)



Fig. 2a Solok Gold Crown (front), late 19th – early 20th century, Acc.no: 2002-00700, Collection of ACM



Fig.2b Solok Gold Crown (back), late 19th – early 20th century, Acc.no: 2002-00700, Collection of ACM

Material Analysis

METAL

To understand if the decorative parts are made of gold or contain less noble metal (e.g. brass), micro-amounts of metal scraping from different areas were analysed with SEM-EDS. Table 1 shows that the metal support is made of copper, where the front is lined with an ornamental gold foil (Fig. 3a). The flowers, with silver coiled wires, are also lined with gold foil over a copper skeleton (Fig. 3b).

Table 1 SEM-EDS of metal components on artefact

Sample Area	Elemental composition Major, minor (traces)
Support metal, top	Cu
Support metal, bottom	Cu
Shaft below flowers	Cu
Cone below flowers	Cu
Flowers	Au, Ag (Cu)
Coiled wire at flowers	Ag, (Au, Cl, Cu)
Ornamental foil, top	Au, Ag (Cu)
Ornamental foil, bottom	Au, Ag (Cu)



Fig. 3a Close-up of ornamental foil lining metal support



Fig. 3b Close-up of the flowers with coiled wire

BLACK SUBSTANCE



Fig. 4 Black substance sample, glossy and brittle

THM-Py-GC/MS analysis of the black substance shows:

- Very long chain fatty acids (peaks 5, 6, 8, 12, 14, 15); large amounts of C12 and C14 suggests for coconut oil. This is the main source of dietary fat in Minangkabau food culture [2].
- Marker peaks 17, 19, 20 indicates the presence of dammar resin. Dammar harvesting is one of the main sources of household cash income in Sumatra [3].

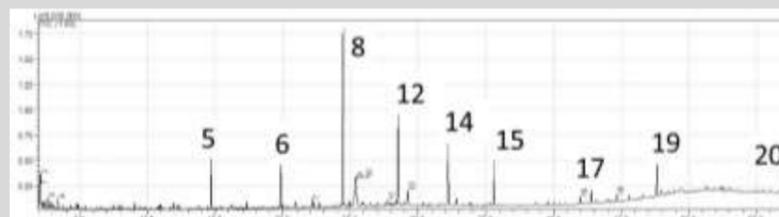


Fig. 5 Chromatogram of black substance obtained from Py-GC/MS with TMAH derivatization, pyrolysed at 550degC. Peak 5: Octanoic acid methyl ester (C8), Peak 6: Decanoic acid methyl ester (C10), Peak 8: Dodecanoic acid, methyl ester (C12), Peak 12: Tetradecanoic acid, methyl ester (C14), Peak 14: Hexadecanoic acid, methyl ester (C16), Peak 15: Octadecanoic acid methyl ester (C18), Peak 17: Lup-20(29)-en-3-one, Peak 19: Hexakisnor-dammaran-3,20-dione, Peak 20: Ursolic acid methyl ester

Conservation Treatment

METAL

Many of the decorative elements made of gold foil were distorted or detached. The whole surface was covered with dust. The high-quality of the gold foil allowed focus on minimal interventive treatment. The floral elements were put back following the crafting method of wrapping them around the wires. Only in a few cases, small adhesive dots (Paraloid B72) were applied. The use of water proved beneficial in softening the incrustated dust before cleaning (Fig. 6). The chasers pitch (Fig. 4) between the ornamental gold foil and copper support was not accessible for consolidation. Gaps on the headdress' edges were closed to prevent loose bits from falling off.



Fig. 6 During cleaning the fragile flowers were supported with absorbent tissue; the top left area is cleaned from the dark soiling still covering the surrounding area

TEXTILE

Soiling, staining, abrasion and losses were observed on both textiles (Fig. 7). Whilst the chintz has been repaired multiple times with adhesive patch repairs, and the brocade's copper wrapped supplementary weft threads (Fig. 8) show sign of deterioration, condition assessment and material analysis confirmed that both textiles were still structurally stable. Only dry surface cleaning was conducted to remove any loose particulate soiling. The focus was shifted to preventive measures for its safe display, and this included mounting and managing the gallery's environmental conditions.



Fig. 7 (Above left) Detail of loss in brocade
Fig. 8 (Above right) Example of copper wrapped thread as viewed under a stereomicroscope (magnification x5)

MOUNTING

The headdress' silhouette was traced to construct a bent acrylic mount (Fig. 9). This allowed for its' contextual display and is physically safer as it would be under less strain if the top was inclined. A sheet of felt was used to line the bent edge of the mount to buffer against any sharp edges and provide friction. Thin transparent fishing line was also used to secure the headdress to the mount.



Fig. 9 Headdress lying on the acrylic support

Conclusions

The Solok Gold Crown headdress in this study presents an elaborate example of Minangkabau craftsmanship. Composed of different materials, of which some were previously unknown nor reported in literature, analysis of the headdress shows that the materials are reasonably compatible and unlikely to promote deterioration. Supported with this knowledge, a minimal interventive approach was taken in the treatment of this headdress, altering as little as possible to stabilize the object for display, whilst preserving the object's cultural significance [4].

References

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