Smithsonian
National Museum of African Art

CONDITION AND TREATMENT REPORT

Date: 10/11/2017

Acc. / Loan no: 2005-6-188

Object: Wrapper

Country: Democratic Republic of the Congo
People: Kuba artist (possible Shoowa)
Date: Late 19th-early 20th century

Materials: Raffia, vegetable dye

Reason for conservation report: Identified as needing conservation treatment

DESCRIPTION

The object is a rectangular woven palm leaf (raffia) fiber wrapper/ceremonial overskirt. Traditionally, men weave the fabric and women add the surface decorations. The surface is enhanced by geometric zig-zags, diamonds, hexagons, V's, bowties, triangles, lines, and square motifs in contrasting tones; one side is not dyed, while the other is dyed black, which are cut to form pile surfaces resembling velvet. This technique formed elaborate geometric designs in slight sculptural relief. Additional stitches are executed in linear embroidery and other stitches The technical cohesiveness of the textile is an indication that it was created by highly skilled craftspeople. According to art historian Vanessa Drake Moraga, "Kuba embroiderers represented textile structures in their compositions, which underscores both the value of weaving to the culture and the prestige attached to women art." Embroidered cut-pile cloths that are similar in style and intricacy to this object are typically reserved for Shoowa noblewomen.

From the book *Weaving Abstraction: Kuba Textiles and the Woven Art of Central Africa*: In the cut-pile embroidery technique, short raffia strands are individually inserted, with a needle, and held in place under one or more warp or weft strands of a plain-woven raffia panel, then cut close to the surface at each end to produce a plush raised "pile." The thread is not knotted, but simply secured at the intersection of the warp and weft as a consequence of the weaver's tightness. The short strands are also referred to as "float yarns". The blocks or lines of cut-pile are built up, stitch by stitch; periodically the exposed ends of the tufts are brushed with the knife, thus spitting them and generating the desirable plush, tactile quality of the surface. The design is produced by combining dimensional areas of black (vegetable dyed) and undyed pile with flat, linear stem stitching.

The wrapper is comprised of seven individually woven sections, two center panels and five border panels that are hand stitched together to create one long rectangle. After the rectangle was constructed, the perimeter of the wrapper was finished with a complex stitch.

On the back of the center panel, "M.R.3" is written in what appears to be black ink or paint. The two center panels are couch (buttonhole/blanket) stitched together using raffia with a 3cm seam allowance on one panel, and a 1cm seam allowance on the other. The border panels are butt-joined to the center panels and blanket stitched using raffia. A previous repair to this stitching was made using modern cream, brown, and black cotton thread and a whip-stitch. The border panels overlap each other by 1cm and are blanket stitched together on the front and back using raffia. The border panel on one of the short ends is missing. Here, the side border panels are haphazardly torn suggesting a section of the wrapper was hastily removed and that originally, the object was larger than its current dimensions.

Resources:

Cooksey, S., ed. 2011. Bark and raffia cloth: interpreting indigenous prestige. *Africa Interweave: Textile Diasporas*. Gainesville: University Press of Florida. Exhibition catalog from the Samuel P. Harn Museum of Art, University of Florida. 107-119.

Drake Moraga, V. 2011. Weaving Abstraction: Kuba Textiles and the Woven Art of Central Africa. The Textile Museum, Washington, D.C. Exhibition catalog.

Dimensions:

CONDITION

The wrapper is in good, but fragile condition. Fibers are brittle; Raffia couch stitching is very brittle.

There are twelve holes in the object: 4 holes are on the border panels - two measuring 1cm in diameter and one measuring 0.5cm - that are threadbare with missing warp fibers, and one is threadbare around the edges and missing warp and weft fibers in the center; 7 smaller holes measuring 0.5cm in diameter are in the center panels and have jagged fiber edges that are pushed to the front surface as though the fabric was punctured from the backside. Each of these measure 0.5cm's in diameter. The largest area of loss is 2cm in diameter and was stabilized from the back using two strips of masking tape in a "+" shape. The tape adhesive was then covered with a woven fabric cut to the shape of the hole and painted to reinstate the decorative pattern. A seam joining two border panels is reinforced from the back with a 15cm length of masking tape; the raffia stitching on the front is missing. A 2cm section of the raffia seam on the opposite border panel is missing. There are stretched and torn holes along the entire perimeter from previously used hanging hardware, which could have been a pin or tack; darkening of the raffia, as corrosion products or oxidation, has occurred where the hanging hardware was attached. There is a second row of pin holes that appear to be more recent, as they are not stretched or discolored.

Previous restoration campaigns are evident: the center panels were haphazardly resewn to the border panels in several areas using a modern cotton thread in cream, black, and brown. In many instances, the repair threads caught only one raffia strand (or only one raffia strand remains). The strands in these areas are now at risk of breaking if the object is handled frequently. The repair threads were

pulled too tightly in a couple areas, causing the edges of the panels to overlap slightly, which caused the perimeter stitch to fold back on itself and in no longer flat. In three instances, holes approximately 1cm in diameter were stabilized by weaving in strips of a plant material to match the original 1:1 tabby weave structure. If these are indigenous repairs is not known.

There is a significant amount of shedding fibers and approximately 70% of the black cut-pile ends are missing. The cut-pile fibers secured under the warp and weft fibers remain. Insects do not appear to be the cause, as only the black cut-pile is missing; not the undyed cut-pile. It's possible that the black dye is acidic and degrading the dyed fibers. On the backside, the woven cloth has darkened where the black raffia cut-pile is applied. This could be from a fugitive dye or from an acidic component darkening the undyed raffia. The center panel seam allowance is slightly crumpled and creased, which is creating tensile stress along the fold edge that can cause fibers to break in this area.

Torn border panels have jagged/torn edges where loose warp and weft fibers are being lost. On a center panel in the middle of the object, there is a 5cm black streak of what could be the black dye used on the cut-pile raffia.

Examined by: Janelle Batkin-Hall
Date: 10/11/2017

PROPOSED TREATMENT

1. Perform a solubility test on the black dye
2. Lightly surface clean with a variable speed vacuum.
3. Perform acid test on black dyed raffia.
4. Remove white accretions (water or solvent).
5. Flatten the fabric folds on the center panel seam allowance using localized humidification (Gortex and damp blotters).
6. Remove tape (solvent) and dispose of the painted fabric insert (per Kevin D).
7. Fill loss (toned Japanese tissue or fabric and perhaps reinstate decorative pattern).
8. Re-attach separating panels using color matched modern thread or Stabiltex. Per Kevin D, distracting cream and brown threads can be removed and replaced with a more appropriate thread.
9. Consolidate/stabilize torn panel ends with a Stabiltex whip-stitch.

TREATMENT

1. Photographed the object to document before treatment conditions.
2. Performed dye solubility tests using distilled water, ethanol, acetone, MEK, and ethyl acetate on dyed and undyed raffia (see Tables 1 and 2).
3. Lightly vacuumed the front and back with a variable speed HEPA vacuum using very low suction. The end of the nozzle was covered with nylon netting.
4. Performed pH tests on woven sections, and dyed and undyed cut-pile (see below).
5. The masking tape paper-carrier was removed with tweezers since the adhesive was no longer sticky. Dried adhesive remained on the high spots of the woven structure. During adhesive

removal tests, mechanical cleaning dislodged some fibers. Therefore, adhesive was removed by placing cotton blotters dampened with acetone directly onto the adhesive and covering them with Mylar and a light weight. After approximately 4 minutes, the blotter had sufficiently swelled and softened the adhesive, which had attached itself to the blotter. This process was repeated until the blotters were no longer picking up adhesive. Some residual adhesive remained, which became blanched and powdery after the acetone evaporated.

6. Blanched adhesive was reduced using cotton swabs dampened with acetone and covering them with dry blotter and a light weight, and left to dry overnight.
7. Blanching and adhesive residue were reduced even further using cotton swabs barely dampened with methyl ethyl ketone. The adhesive was very soluble in MEK and it was used sparingly so that darkening of the cloth and tide-lines would not form. Afterwards, ethyl acetate was tested and used since it only slightly solubilized the black dye and removed most of the blanching.
8. Fabric was locally humidified by placing felted Gortex and blotters dampened with distilled water onto the folds. This was then covered with Mylar and a light weight. After 60 minutes, the fabric was gently unfolded and pressed into place. Areas were dry overnight under dry blotters and a light weight.
9. Fibers around holes over 1cm in diameter were locally humidified using felted Gortex and blotters dampened with distilled water in order to make them more flexible. Next, holes were stabilized using thin strips of toned Tyvek woven into the original material using a sewing needle. Prior to weaving, the Tyvek was delaminated to half its thickness and toned on both sides using Golden Acrylics in Burnt Umber, Yellow Ochre, and Titan Buff.
10. Tyvek ends were secured using 40% Ethulose 400 (ethyl hydroxyethyl cellulose) in distilled water applied with a brush.
11. Where necessary, Tyvek was touched-up using Burnt Umber and Yellow Ochre Golden Acrylics applied with a #0 brush.
12. Torn ends were stabilized with a whip-stitch using Gutermann Skala polyester thread, color #467.
13. Old brown, black, and beige restoration threads were removed. Stitching was replaced using the original sewing holes, where possible, and a blanket stitch with Mettler Stickgarn #30 brown mercerized cotton embroidery thread and a curved needle.
14. Filled the loss by photographing the same pattern adjacent to the loss and printing it on Epson Ultra Premium Photo Paper Luster (alpha cellulose with a polyethylene resin coating). The photo paper was not attached to the object.

Conservator: Janelle Batkin-Hall
Date: 11/1/2017 -

Photographic Documentation
2005-6-188-bt1 (through bt25)

Exhibition Recommendations

Exhibition Record:

PLM Fiber Analysis:

1. Black dyed cut-pile is raffia
2. Undyed cut-pile is raffia
3. Brown thread is cotton
4. Cream thread is cotton
5. Black thread is cotton
6. Raffia at torn end panel is raffia
7. Fabric fill is polyester. Although, a strand of an unknown plant fiber that resembles flax was present in the collected sample

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Dye Solubility Test:

On the front, a drop of distilled water was placed on a small section of black cut-pile and black embroidered raffia for ten seconds. Droplets were collected with a corner of dry blotter paper. The dye was not transferred onto the blotter. In a second test at the same location, dry blotter paper was placed under the test area and a drop of distilled water was placed onto the same small section of black cut-pile. The droplet was covered with Mylar to inhibit evaporation and a light weight was placed on top for 15 minutes, during which time the drop of water was pulled to the dry blotter. The color of the water on the blotter was noted. This test was repeated using acetone, ethanol, MEK, and ethyl acetate on both dyed and undyed sections of raffia:

Table 1: Black dyed cut-pile raffia

Solvent	Observed Color	Notes
Distilled water	Pinkish-brown	Stain color is present throughout entire wet spot; dye is semi-soluble in distilled H_2O. Droplet was not absorbed into the raffia for at least one minute.
Acetone	Pinkish-brown	Stain color is faint, but present throughout entire wet spot; dye is soluble (most soluble) in acetone. Droplet was immediately absorbed into the raffia, solvent darkened the raffia slightly.
Ethanol	Pinkish-brown	Stain color is present throughout entire wet spot; dye is soluble in ethanol. Droplet was immediately absorbed into the raffia, solvent darkened the raffia slightly.
Methyl Ethyl Ketone	Pinkish-brown	Stain color is present throughout entire wet spot; dye is soluble in MEK. Droplet was immediately absorbed into the raffia, solvent darkened the raffia slightly and created a thin tide line after evaporation. USE SPARINGLY!
Ethyl Acetate	Grey	Stain color is localized where the black dye touched the wet blotter; dye is soluble (least soluble) in ethyl acetate.

Table 2: Undyed raffia border

Solvent	Observed Color	Notes
Distilled water	Yellowish-brown	Dirt was transferred to the blotter via the distilled H_2O. Droplet was not absorbed into the surface for at least one minute.
Acetone	Yellowish-brown	Dirt was transferred to the blotter via the acetone. Droplet was immediately absorbed into the raffia, solvent darkened the raffia slightly, and observed color is very faint.
Ethanol	Yellowish-brown	Dirt was transferred to the blotter via the ethanol. Droplet was immediately absorbed into the raffia and solvent darkened the raffia slightly.
Methyl Ethyl Ketone	Yellowish-brown	Dirt was transferred to the blotter via the MEK. Droplet was immediately absorbed into the raffia, solvent darkened the raffia slightly and created a thin tide line after evaporation. USE SPARINGLY!
Ethyl Acetate	Yellowish-brown	Dirt was transferred to the blotter. Droplet was immediately absorbed into the raffia.

Adhesive Solubility Test:

Cotton swabs dampened with each solvent were gently rolled directly onto the adhesive-side of the masking tape removed from the object.

Table 3: Adhesive Solubility

Solvent	Notes
Distilled water	Not soluble
Acetone	Very soluble (most soluble)
Ethanol	Semi-soluble
Methyl Ethyl Ketone	Very soluble
Ethyl Acetate	Semi-soluble (least soluble)

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pH Tests:

Distilled water: 5.5
Black cut-pile raffia: 3.5
Undyed cut-pile raffia: 3 to 3.5
Undyed woven structure: 3.5

XRF Analysis:

Measurement Time: 40 or 60 seconds

Tube Voltage: 50 kV
Tube Current: 40 or 60 μA
Tube Target Material: Rh
Elio Device: SN705
Device Mode: Head
Acquisition Mode: Manual
Acquisition Channels: 4096
Sample to Detector Material: Air

Prior to XRF, the aluminum background sheet was cleaned using ethanol on Kimwipes.

Table 3: XRF results.

Figure #	Sample Area	Notes
1	Aluminum background	Alloy containing aluminum, manganese, vanadium, and iron
2	Black cut-pile raffia	Black dye/colorant is iron and manganese. Sulphur, titanium, and zinc are likely from the raffia since those peaks also appear in the undyed cut-pile spectra.
3	Black raffia embroidery	Black dye/colorant is iron and manganese. Sulphur, titanium, and zinc are likely from the raffia since those peaks also appear in the undyed cut-pile spectra.
4	Nylon textile fill, black pigment	Black pigment is from iron and manganese. Zinc, calcium (from kaolin?), and titanium are most likely from a white paint body because the white and grey fill pigments have larger concentrations of zinc, calcium, and titanium.
5	Nylon textile fill, grey pigment	Grey pigment is the black fill pigment (iron and manganese) mixed with the white fill pigment (zinc, calcium (from kaolin?), and titanium).
6	Nylon textile fill, white pigment	White pigment is zinc, calcium (from kaolin?), and titanium. Large amounts of iron could be from surface soiling and/or contamination from the black and gray pigments.
7	Unknown white pigment	The small amounts of white pigment on undyed raffia produced spectra that is a combination of the white fill pigment and undyed raffia spectra. The white spots of pigment could have accidently been transferred to the object while the nylon fill was being inpainted.
8	Unknown white pigment and textile fill white pigment	Appears to be the same pigment, just different concentrations.
9	Undyed cut-pile raffia	Large iron peak could be from surface soiling.
10	Undyed cut-pile raffia and black cut-pile raffia	Spectra are nearly identical except the black cut-pile has a large iron (dye/colorant) peak.

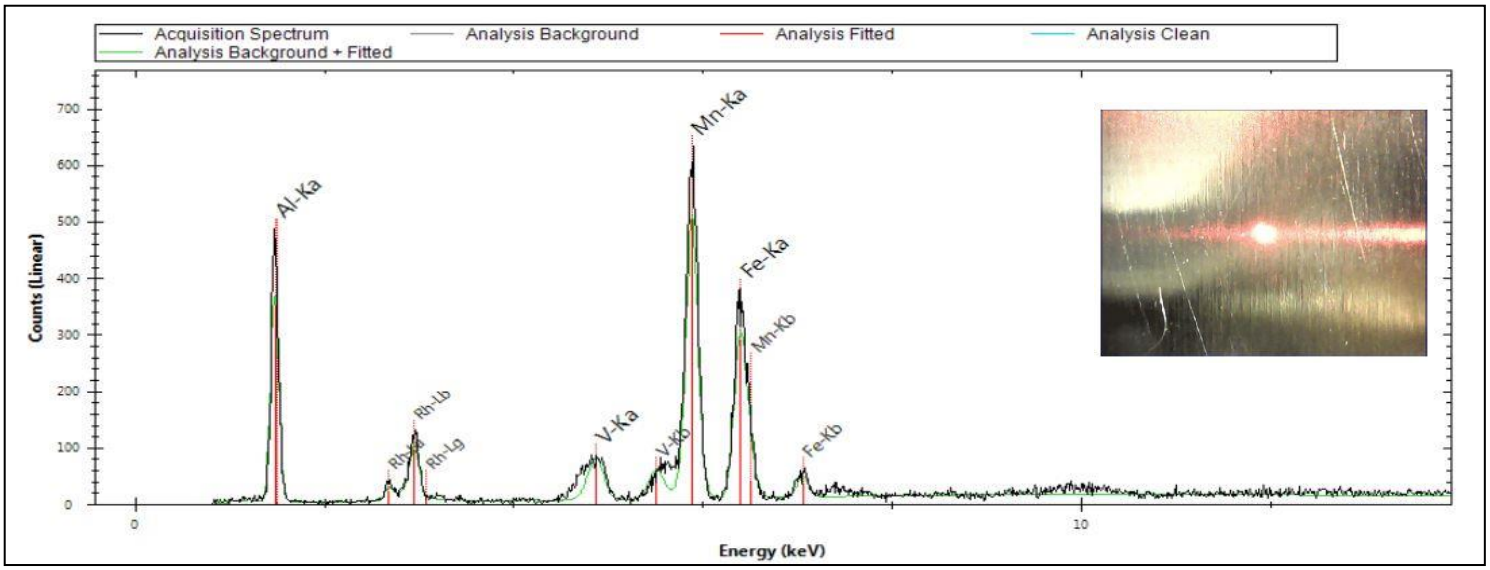

Figure 1: Aluminum background.

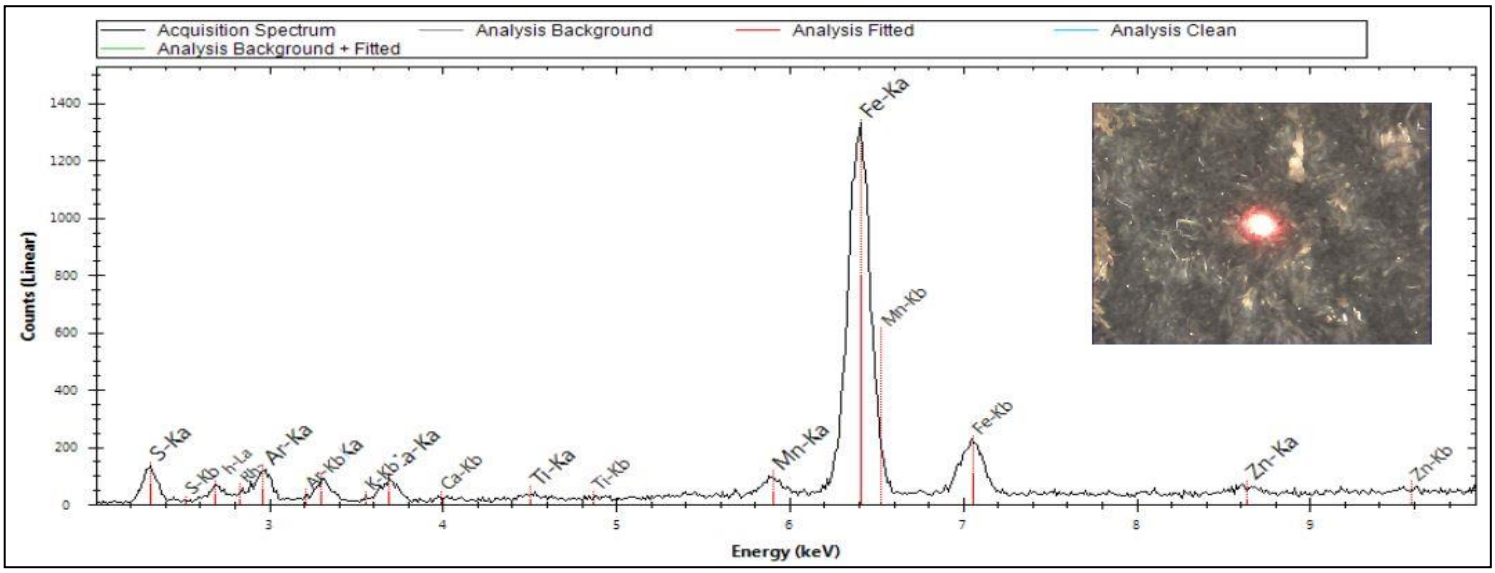

Figure 2: Black cut-pile raffia.

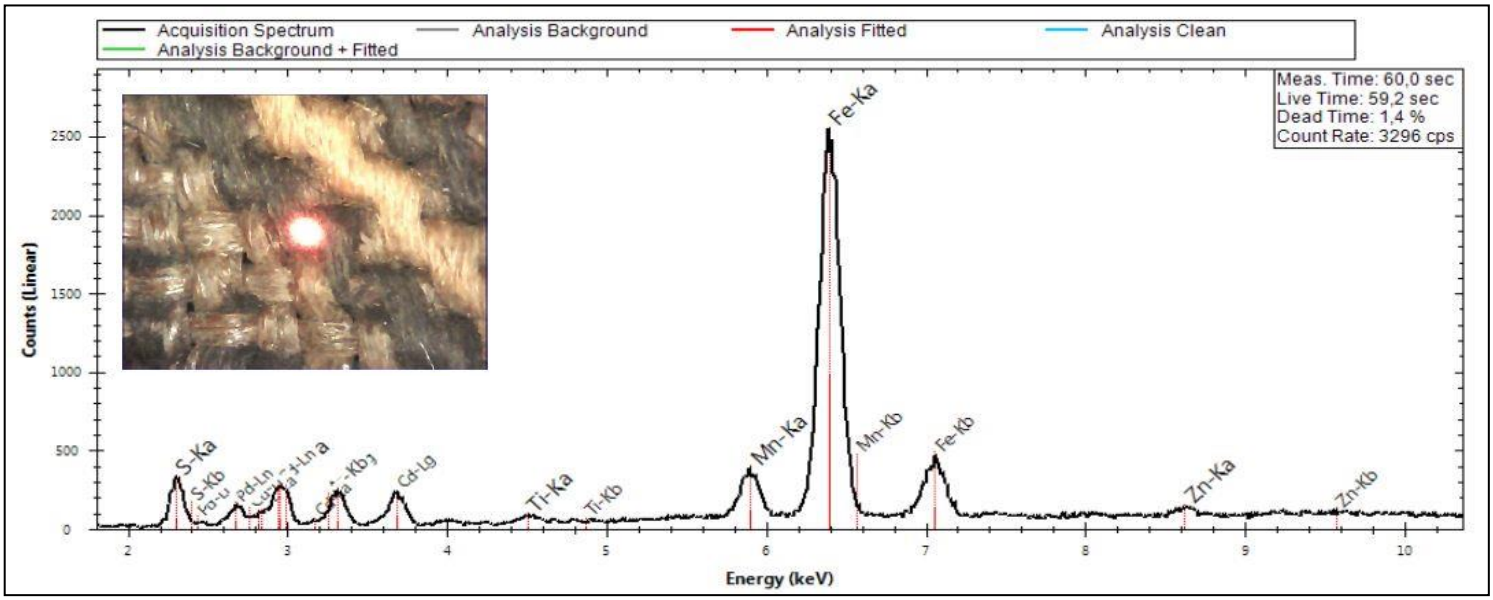

Figure 3: Black raffia embroidery.

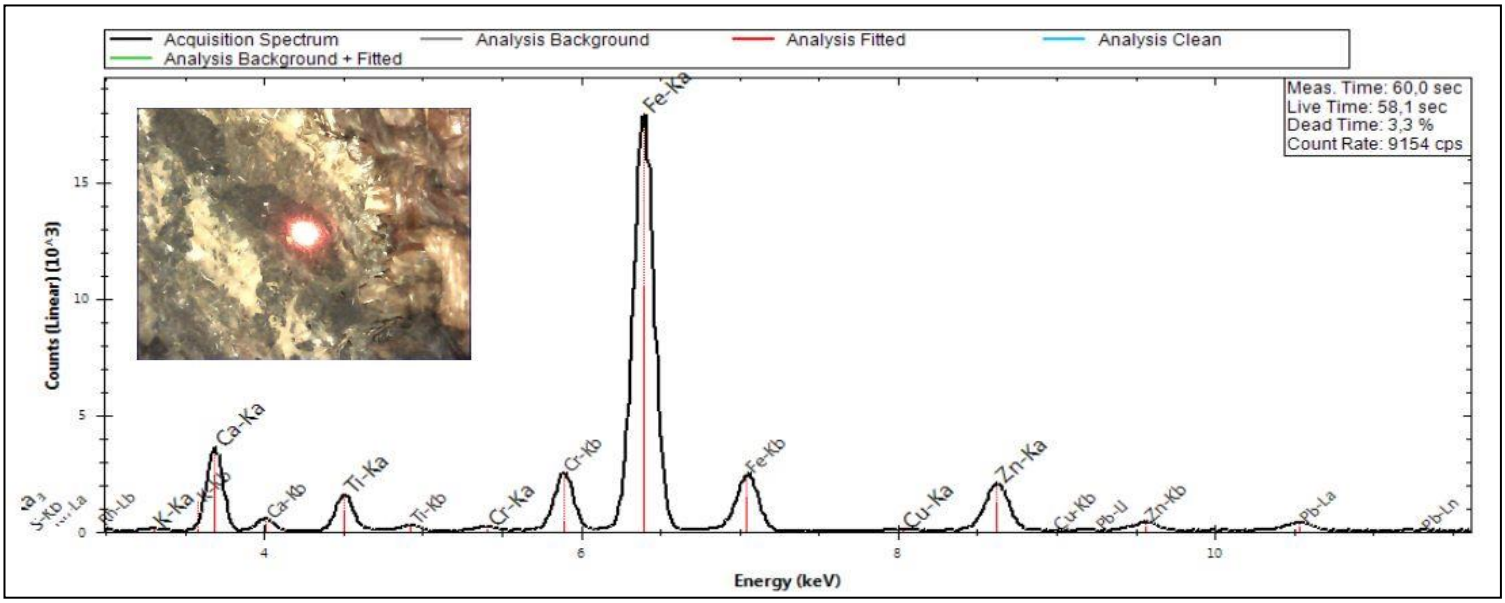

Figure 4: Nylon textile fill, black media.

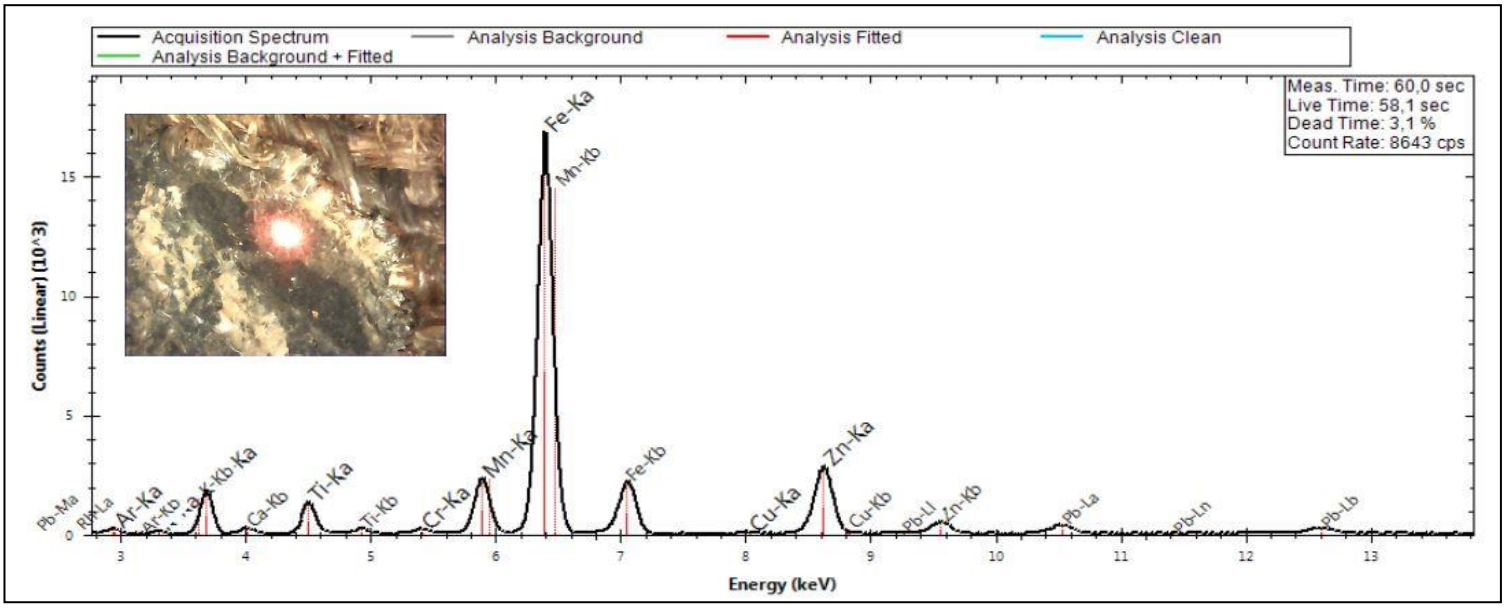

Figure 5: Nylon textile fill, grey media.

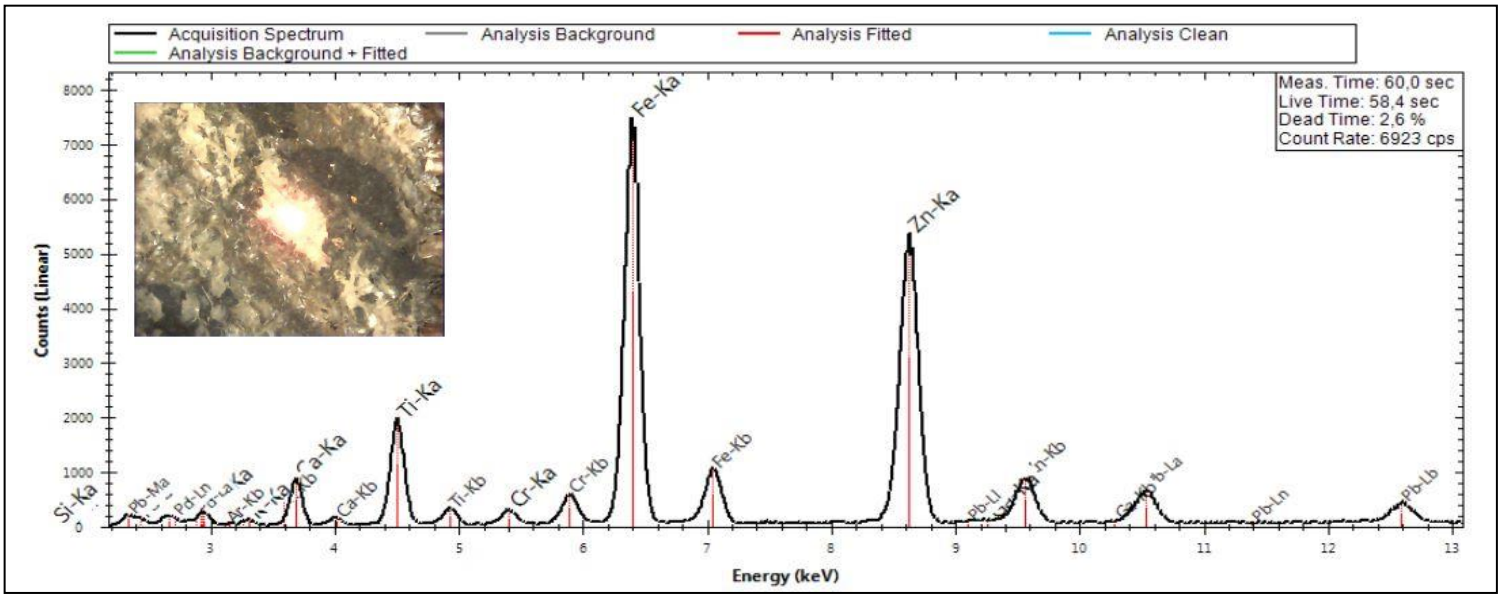

Figure 6: Nylon textile fill, white media.

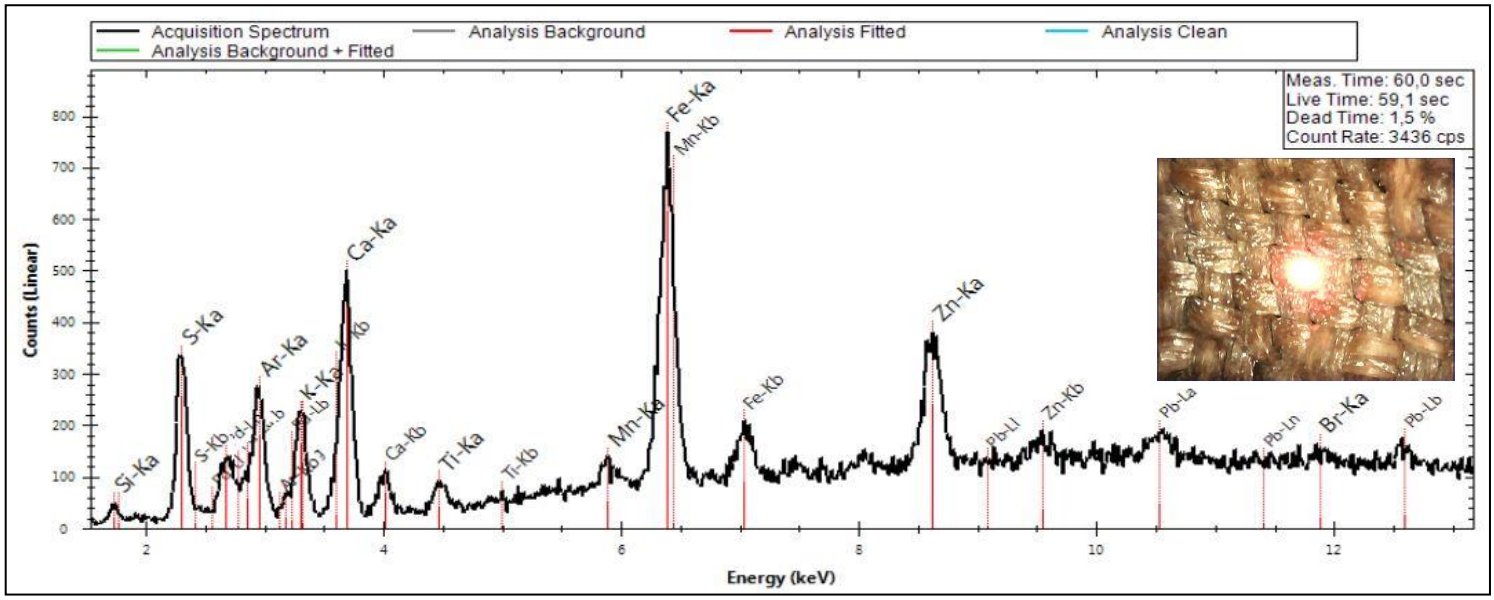

Figure 7: Unknown white media.

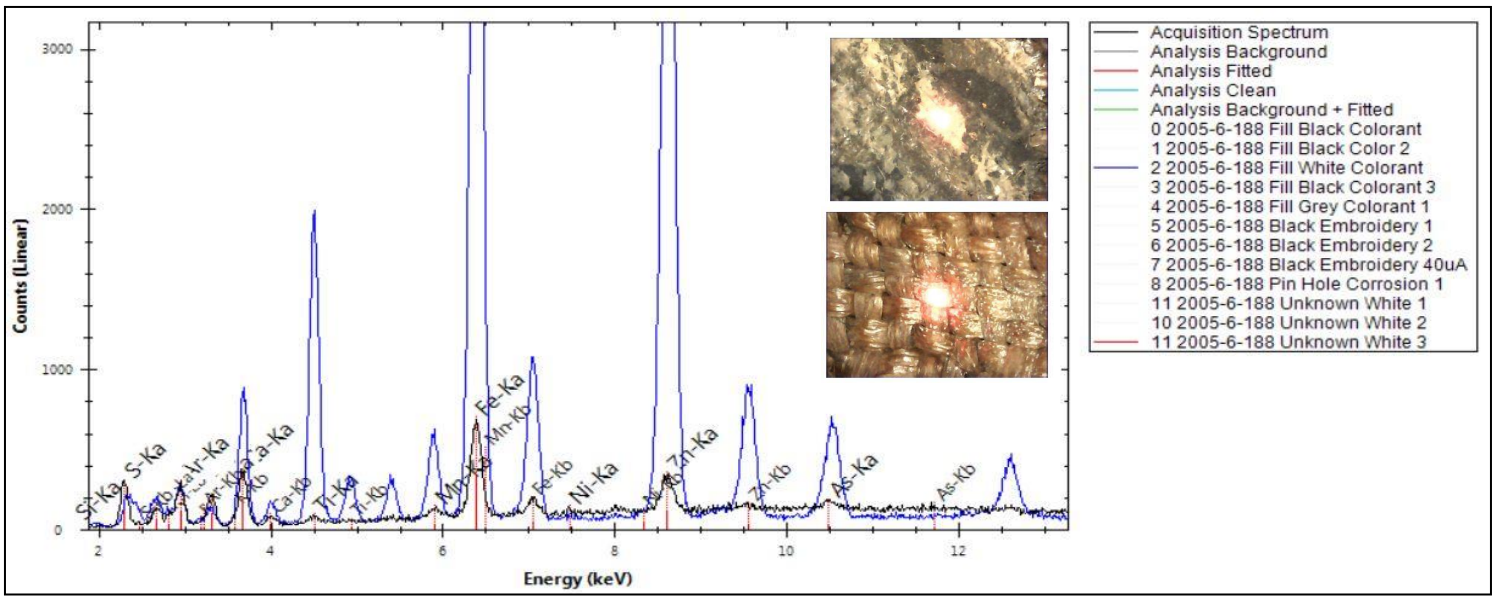

Figure 8: Textile fill white media (blue) and unknown white media (black).

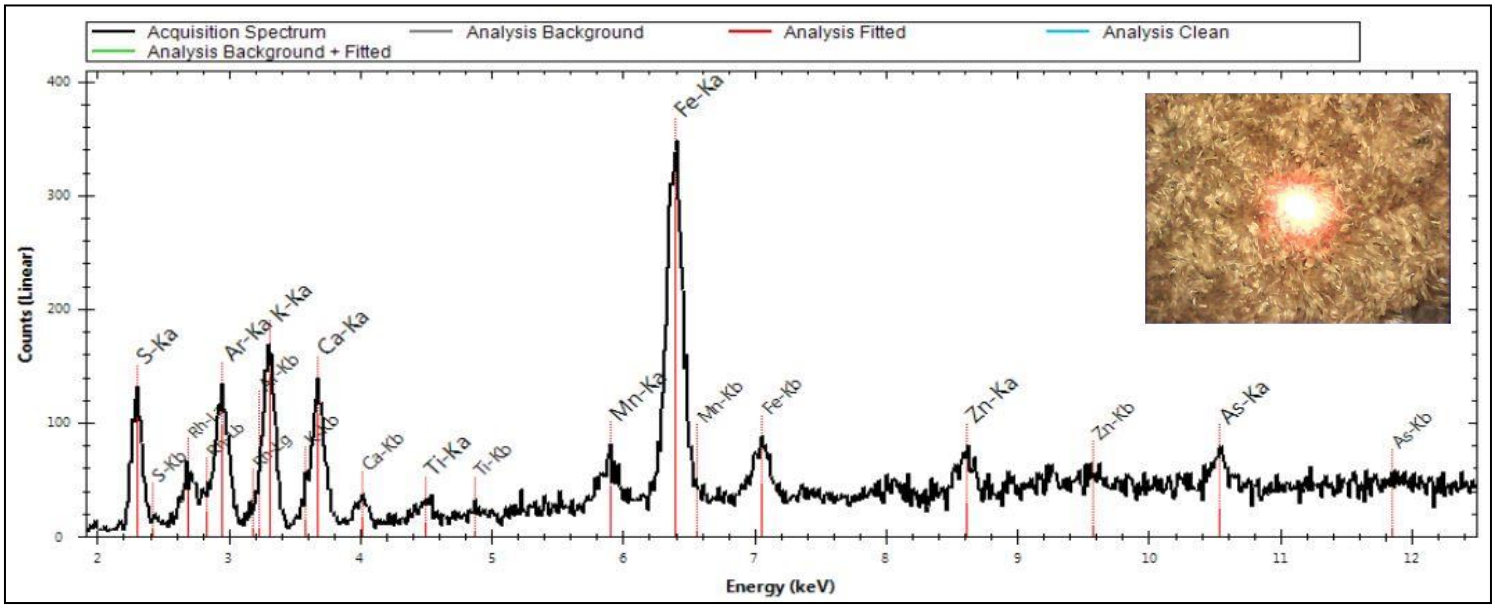

Figure 9: Undyed cut-pile raffia

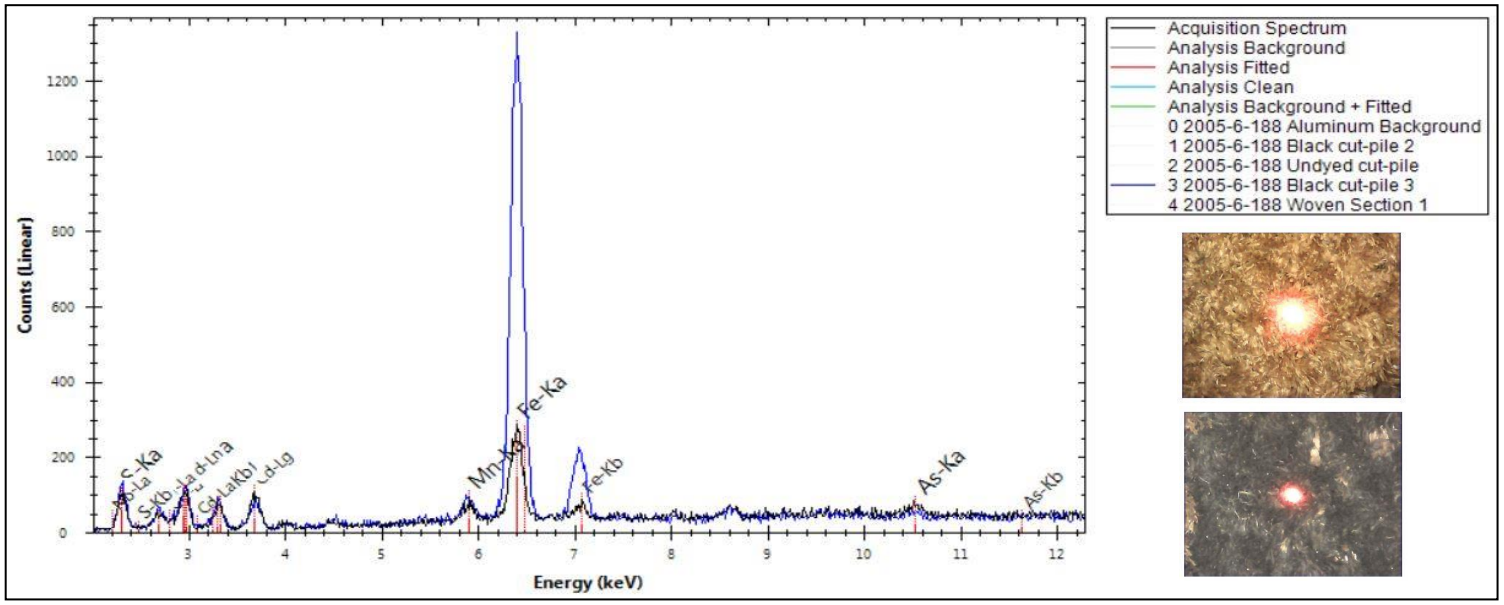

Figure 10: Black cut-pile raffia (blue) and undyed cut-pile raffia (black).