Non-anatomical Characters in Wood Identification

FORESTRY COMMISSION-TIMBER INDUSTRY DEVELOPMENT DIVISION

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Presentation outline

1. Preamble

2. Non-anatomical characters

3. Conclusion

Preamble

The characters used in wood identification are primarily anatomical ones though there are some non-anatomical characters.

These non-anatomical characters include :

❖ Color

❖ Luster

❖ Odor

❖ Density and hardness

❖ Regularity of grain

❖ Florescence

Color

Color in wood usually refers to the **Heartwood color.**

The color of freshly felled log may be quite different from the color of a dried and processed log.

The color of a wood changes over time and with exposure to light (e.g., African ebony, *Diospyros*; and Avodire, *Turreanthus)* even after they are dried and processed.

There can also be significant natural biological variability in the color of a given species or timber.

Lifeline Ultra-2 Wood Stain Colors

Luster

Luster is a somewhat subjective feature of some woods.

Luster refers to the way in which light reflecting from the wood appears to penetrates into and the shine from the surface of the board.

The luster in wood is dependent on the **form of the wood**. For instance, wood in a log form or a rough-cut by a sawmill will never show the luster in it.

However, smooth, planed, or sanded boards will generally show luster if they are a species that has this character.

Wood That Lustre

Pericopsis elata

Hannoa klaineana

Scotelillia klaineana

Terrietie utilis (high lustre)

Terminalia spp. (low lustre)

Tetrochidum didysmostermon (high lustre)

Turaenthus (high lustre)

Vitex micrantha (low lustre)

Zanthoxylum gilletii (highly lustrous)

Odor

Odor

Odor in wood is another non-anatomical character that can be valuable and difficult to describe.

As with color, different people will perceive the odor of the same wood differently, and there can be significant variability in the strength of the odor of wood.

Odor is not a strong character and should only be used at the end of an identification.

Example

Duabankye **Diallium aubrevillei**

Wawa   **Triplochiton scleroxylon**

Entandrophragma cyllindricum typically has a pleasant, spicy ordor that is lacking in the others (storied anatomical)

Density and hardness

Density and hardness are related physical properties of wood which influences the mechanical properties.

Density describes the weight or mass of a specimen compared to its volume.

Hardness describes how easy or difficult to cut or dent a wood.

The density of a piece of wood is affected by the amount of moisture in the specimen.

For the hardness level of a wood, if the wood is easy to dent with your fingernail, it is soft, and vice versa.

Remember that hardness or softness are physical properties of wood and have nothing to do with whether the wood is a softwood or a hardwood.

Regularity оf grain

Regularity of grain refers to whether the cells of the axial (longitudinal) system of the wood are wavy, Interlocked, or straight.

Wavy Grain occurs when the cells of the axial system run up and down the trunk of the tree with gradual back and forth undulations of maybe 1-2 cm.

Interlocked grain is formed when the cells of the axial system do not run perfectly straight up and down the tree but rather grow curving up the tree to the right.
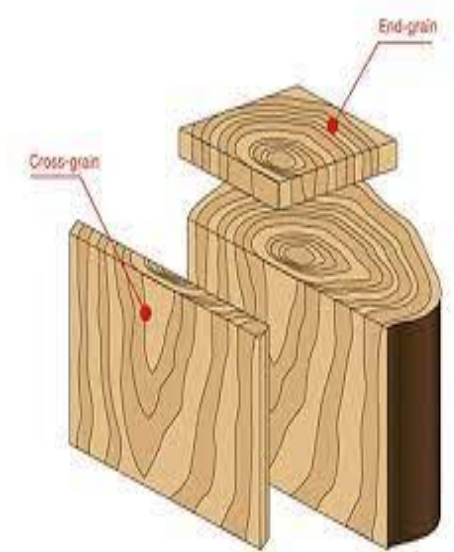
Fluorescence

The last non-anatomical character is fluorescence.

For instance, if you shine a UV lamp (either a portable light or a larger laboratory model) on freshly sanded or cut surfaces, some woods fluorescence.

That is, the slightly purple or invisible UV light is taken up by the specimen and different color (usually a yellow-green color) is emitted by the wood.

There are woods that have extractives that are fluorescent only when they are dissolved in water.

Fluorescence

Afzelia Africana

*Albizia ferruginea (*A. samina*)*

Copaifera salicounda

*Erythrophleum suaveolens (*Potrodom*)*

Lonchocarpus sericeus

Mammea Africana
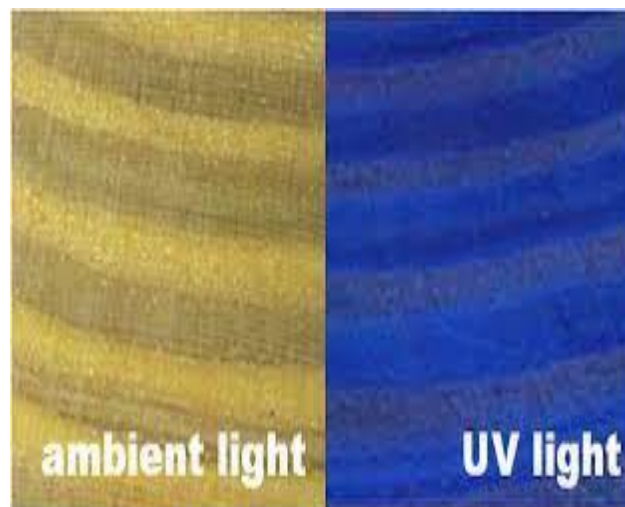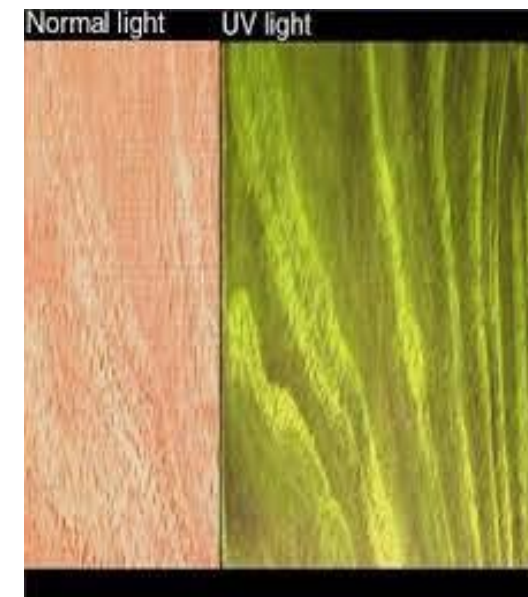
Nauclea diderrichii

Parkia bicolor

Rosewood

Fluorescence

Water extract fluorescence is usually a bluish color.

Most woods lack both surface and water extract fluorescence, so these can be a powerful characters for confirming an identification once an initial determination is made based on wood anatomical features.

Conclusion

Non-anatomical characters contribute a part in the identification of wood specimen however these characters does not give a precise identification compared to the anatomical characters.

The non-anatomical characters are often used as secondary confirmations or as an automatic part of pattern recognition.

Non-anatomical characters are often some of the first characters that will form a part of the artistic aspect of wood identification.