

**ETHNOCOCCIDOLOGY: USE OF THE GIANT MARGARODIDS,
LLAVEIA SPP. (HOMOPTERA: COCCOIDEA: MARGARODIDAE),
BY INDIGENOUS PEOPLES OF MESOAMERICA
IN THEIR CULTURE, MEDICINE AND ARTS**

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ABSTRACT

Fat extracts from margarodid scale insects of the genus *Llaveia* have been used for centuries by the indigenous peoples of Mesoamerica. A discussion of the extraction process and uses of this natural product is presented along with comments on the taxonomy of the five species currently ascribed to the genus *Llaveia*.

KEY WORDS: Margarodidae, *Llaveia*, scale insects, Nij, Aje.

Extracts from giant margarodids in the genus *Llaveia* (Signoret) (Coccoidea: Margarodidae) have been used for centuries by the indigenous peoples of Mesoamerica as waterproofing agents, medicines, and as a base for lacquer work. Since the early sixteenth century, Mayan indians have used a fat from *Llaveia axin* (Llave) as a preservative and pigment base on carved, painted limestone buildings and for decorated lintels on these buildings that were made of zapote wood (McBride, 1943). The fat of a closely related species, *L. mexicanorum* (Cockerell), is used to the present day as a finish and preservative for cups and bowls made from gourds that are sold in villages throughout Guatemala and as a base for lacquer work in Mexico.

Lacquer work here refers to the traditional art of decorating gourds and wood or ceramic objects with natural compounds which impart a smooth, shiny and durable finish. In Mexico and Guatemala several towns have historically specialized in this form of artwork. Among the most notable of these places are Chiapa de Corzo (Chiapis, Mexico), Olinala (Guerrero, Mexico), and Rabinal (Baja Verapaz, Guatemala) (Jenkins, 1964).

The product used is actually the fat of the insect which is extracted by a laborious process requiring two full days to complete. Briefly, the process involves the following steps: collecting the insects, called "Nij"; washing the powdery wax from their bodies; cooking them; mashing out the body contents; rinsing and straining through cloth into an earthen pot; skimming the fat off the top of the aqueous suspension after allowing it to separate overnight; churning the solution to further separate the remaining fat; kneading the fat and rinsing it with water to eliminate the remains of insect hemolymph; and wrapping the solid fat before it is stored as a

loaf or ball of "Aje." In 1992, the authors helped collect and process approximately 17,000 adult female "Nij" which yielded 2.2 kg of finished "Aje."

Pure "Aje" is then used as a waterproofing and polishing agent for articles of wood or pottery, as a base for face and body paints, and artistically for binding pigments used in decorating wooden artifacts. In folk medicine the "Aje," or body contents of the insect itself, is used as a medicinal unguent for external wounds, swelling and skin afflictions (Jenkins, 1970). This natural insect fat is of particular interest because it has been used on eating utensils for centuries, and its widespread usage provides considerable evidence that there are no toxic or undesirable effects associated with the fat.

Representatives of the genus *Llaveia* have been recorded from Mexico down through Central America, and in Ecuador and Peru in northern South America. Five species, [*axin* (Llave), *bouvari* (Signoret), *mexicanorum* (Cockerell), *oaxacoensis* Morrison, and *uhleri* (Signoret)] are currently ascribed to the genus. In his classification of the Margarodidae, Morrison (1928) used body size to separate *mexicanorum*, *bouvari*, and *axin*. He stated in this study that it seemed at least possible that *axin* varies considerably in length, and that *bouvari* is identical with it. After studying fragments of a single adult female of *L. uhleri*, Morrison (1928) found that those fragments indicated rather clearly that *uhleri* could not be considered a characteristic member of the genus *Llaveia*. No recent studies of the genus *Llaveia* have been completed, so much confusion exists in the taxonomy of the group.

Recent expeditions by the authors into areas of Guatemala and Mexico, where "Aje" production and use once flourished, indicate that this ancient practice may be vanishing because of a lack of knowledge about its production and use, and its replacement in the arts by synthetic materials.

REFERENCES

- Jenkins, K.D.** 1964. Aje or Ni-in (the fat of a scale insect), painting medium and unguent. XXXV Congreso Internacional de Americanistas, Mexico, 1962, Actas y Memorias. pp. 625-636.
- Jenkins, K.D.** 1970. The fat-yielding coccid, *Llaveia*, a monophlebine of the Margarodidae. *Pan Pacific Entomologist* 46:79-81.
- McBryde, F.W.** 1943. The black lacquer mystery of the Guatemala Maya Indians. *Scientific Monthly* 57:113-118.
- Morrison, H.** 1928. A classification of the higher groups and genera of the coccid family Margarodidae. *USDA Technical Bulletin* 52. 240 pp.