Pawpaw (genus *Asimina*) is a large shrub or small tree that grows in eastern North America as far north as southern Canada, as far south as Georgia and as far west as Texas and Nebraska. Pawpaw has large leaves and a large, heavily seeded, edible fruit. The pulp of the fleshy fruit, which looks something like a papaya that is curved like a banana, tastes like custard and is high in protein (Pawpaw is not related to either of those tropical plants). The fruit is used to make jellies and jams and is also used in baking cakes. Several species of pawpaw exist. The tree is not cultivated to any significant extent. The genus is actually considered threatened or endangered in several regions due to forest destruction.¹

The pawpaw is interesting as a botanical because the tree is not easily susceptible to many insect pests. Historically, Native Americans have used the dry powder of pawpaw to eradicate lice infestations. Chemical analysis of different parts of the pawpaw show that the pesticide activity, as measured using a standard brine shrimp assay, is highest in the small twigs. The seeds, roots, bark and unripened fruit contain lower, but significant pesticide activity, whereas the leaves and stem wood contain little or no pesticide activity.²
The molecules responsible for the pesticide activity have been isolated and identified as acetogenins. Acetogenins are part of a family of compounds known as polyketides. Generally, polyketides are a naturally occurring class of molecules with antibiotic, antifungal and insecticide properties. The structure of these molecules is very complex making them difficult to synthesize; therefore acetogenins are isolated from sources rich in the molecule. Pawpaw is rich in these molecules, but, as noted above, the tree is not cultivated.\textsuperscript{3,4,5,6}

Studies using extracts of pawpaw as an insecticide in hair shampoo were initiated. Those initial studies indicated that hair shampoo containing a standardized extract of pawpaw was 100\% effective in removing both head lice and nits from scalp hair. Preliminary research also showed that the active ingredients isolated from pawpaw did not cause significant allergic contact dermatitis or skin irritation in a guinea pig maximization test. These data indicate that pawpaw has the potential to be the active botanical in an herbal shampoo to treat lice infestations. However, at the moment, no such shampoo is commercially available although several websites describe recipes for just such a shampoo.\textsuperscript{7,8}

It must be noted at this point that there is also some data to indicate that pawpaw extracts have cytotoxic effects on cancer cell lines grown in laboratory cultures. However, there is no data currently available that clearly supports the efficacy or safety of pawpaw to treat cancer (or any other disease). At the moment, pawpaw extracts have been shown to be potentially useful externally and, in fact, may be dangerous when taken interernally.\textsuperscript{9}
So pawpaw has potential as an herbal remedy to treat lice infestations. It is quite possible as lice and other insects develop resistance to lice shampoos currently on the market, the natural insecticide properties of pawpaw may become very commercially viable.

References


