

Identifying the active ingredient in showy mountain ash*

What the study looked at

Iiyiyiu healers use showy mountain ash bark to treat the kinds of symptoms that we often see with diabetes. In past studies, we had found that showy mountain ash helped to lower blood sugars in live animals. In this study, we tried to find out exactly which ingredients in mountain ash bark produce these effects. There are three reasons to look for the exact ingredients in the plants:

1. We need to be sure that the plant does not contain any ingredients that could be harmful.
2. Some ingredients have already been studied by other scientists. If we find these ingredients in the plants, we can build on what other people have already learned.
3. Knowing the active ingredients may help us determine the best time to collect the plants, and the best ways to preserve them. (We will also rely on the Elders' knowledge for this.)

What we found out about the ingredients in showy mountain ash

As usual, we began by breaking the ingredients into large groups, and testing each large group for anti-diabetic effects. Then we took the groups that had effects, broke them down into smaller groups, and retested. We continued in this way until we had narrowed down to ten ingredients. We were excited to find that three of these ingredients have never before been identified. This would not be so unusual if we were looking at tropical plants, but most boreal forest plants have already been well studied, and it is uncommon to find a completely new ingredient. It seems that showy mountain ash contains some things that are quite unique. This is an important enough finding that we will be sending the article to the top journal in the field (*Journal of Natural Products*). Other scientists will see that the plants the Iiyiyiu healers are using have some special properties.

One of these new ingredients—ingredient 2— seems to be the one that produces most of the anti-diabetic effects. Not only does ingredient 2 lower sugar levels in lab tests, but the more of it we add, the lower the sugar levels go. Next, we would like to know exactly *how* ingredient 2 produces these effects. This is something we could look at in future studies.

* This is a simplified summary of a more technical report by José Antonio Guerrero-Analco, Ammar Saleem, Padma Madiraju, Asim Muhammad, Tony Durst, Pierre Haddad, and John Arnason, called "Bioassay-guided isolation of the antidiabetic principle from *Sorbus decora* (Rosaceae) used traditionally by the Eeyou Istchee Cree First Nation."