



Willow Water and Systemic Acquired Resistance

Posted by [Paul Weideman](#)

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[Paul Weideman](#)

[Willow Water and Systemic Acquired Resistance](#)

December 14, 2015 05:45PM

Registered: 7 years ago

Posts: 13

Has anyone tried feeding newly planted whips with willow water or used it as a foliar spray to stimulate SAR?

Here are a couple paragraphs from an article I found and the link to the page.

[www.bluestem.ca]

"To harness this power, they made a tonic called "willow water" by collecting willow twigs, trimming the leaves, immersing the stems in a pail of water, and pouring the water on newly planted trees, shrubs, and bedding plants. Commercial rooting preparations contain a synthetic form of indolebutyric acid (IBA) and growing tips of willows contain high concentrations of IBA, depending on the quantity used and length of time you soak them. Any willow (*Salix*) tree or shrub species will work.

Another discovery: In the January, 2004 issue of *The Avant Gardener*, a monthly newsletter to which you can subscribe for \$24/year at Horticultural Data Processors, Box 489, New York, N.Y. 10028, editor Thomas Powell notes that gardeners reported all sorts of plants growing remarkably better when given regular doses of tiny amounts of aspirin (1 part to 10,000 parts water; larger doses actually proved toxic)," and that The Agricultural Research Service is investigating the reasons behind aspirin's beneficial effects.

Plants make salicylic acid to trigger natural defenses against bacteria, fungi, and viruses. Aspirin thus is an activator of 'Systemic Acquired Resistance' (SAR). However, plants often don't produce the acid quickly enough to prevent injury when attacked by a microbe. Spraying aspirin on the plants speeds up the SAR response. Tests have shown this works on many crops, producing better plants using less pesticide. "It also makes it possible to successfully grow many fine heirloom varieties which were discarded because they lacked disease resistance." Powell says."

Paul Weideman

Fencerow Cider

Imlay City, MI

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[Michael Phillips](#)

[Re: Willow Water and Systemic Acquired Resistance](#)

January 04, 2016 03:37PM

Moderator

Registered: 11 years ago

Posts: 621

Watering in rootstock from the nursery with willow water can be helpful, especially those clonal dwarfs which seemingly have few roots to spare. I didn't know about indolebutyric acid per se but have long observed how willow shoots readily self-root. We have used willow water in the greenhouse to help get herb cuttings started.

The salicylic acid pathway is one of two primary plant defense mechanisms. The presence of disease on the leaf triggers 'Systemic Acquired Resistance' which is why I say a little environmental reality is a good thing. Fruit growers could certainly use willow water to [up the ante](#) going into an infection period. There's a commercial spray product called Actigard that Syngenta promotes as being "kinder and gentler" to plants than salicylic acid or aspirin ... but I would go with the willow water option as homegrown herbal medicine can't be beat.

Mycorrhizal fungi, fatty acids, and terpenoids/flavonoids stimulate the jasmonic acid pathway, otherwise known as 'Induced Systemic Resistance' (ISR). This is where I've focused holistic methods to date.

[Lost Nation Orchard](#)

Zone 4b in New Hampshire

Edited 1 time(s). Last edit at 01/04/2016 03:55PM by Michael Phillips.

[Reply](#) [Quote](#)

[Karn Piana](#)

Registered: 5 years ago

Posts: 77

[Re: Willow Water and Systemic Acquired Resistance](#)

July 17, 2018 07:17AM

There seems to be a mountain of research literature published on the topic of Salicylic Acid, Jasmonic Acid, SAR, various pathogens and the efficacy of various strategies in inducing these healing states in different plants. Personally, I came upon the concept of SAR while informally studying *Pseudomonas siringae* and the effect of UV light for a post on this forum and have come to understand that there is a great deal of highly specialized knowledge and interactive complexity which rears itself immediately upon diving into this topic.

I wonder if there is something of a divide in need of bridging between the people doing this research and the agriculturalist. In my mind, having free access to research publications is a tremendous asset and serves to partially erase the divide if the right questions are asked. I have been finding that each question leads to numerous others and one can begin to sense a phantasmic model of how things tend to interrelate and operate.

To the topic of willow water: I came across this forum topic outside of the site in the course of searching for and reading about the apparent consensus on the effectiveness of exogenic (originating from outside) applications of Salicylic Acid in inducing a SAR state.

As the article above states, willow (*Salix* sp.) is a potent source of Salicylic Acid and a tea of branch cuttings has long been used as a very effective rooting hormone. I am interested in the use of SA as a supplemental input in compost teas, root drenches, and as a potential foliar spray additive to create a kind of latent SAR boost. The article gives the appropriate ratio for a foliar spray as 1/10,000 which is formulated as 3 aspirin dissolved in 4 gallons of water. Personally, I may even go with an even greater dilution for a weaker and more subtle supplemental effect as a tea ingredient or as a constituent in an ongoing spray regimen on healthy trees and plants...

Generally speaking, a plant will respond to a microbial pathogen by triggering something called a Hypersensitive Response (HR). If I understand this correctly, the HR trigger results in localized cell death, the production of what are known as reactive oxygen species (peroxides, superoxide, hydroxyl radical, and singlet oxygen), and the production of antimicrobial compounds at the infection site. This is interesting when one observes the visual symptoms of *Pseudomonas Siringae*, as it seems that certain aspects of the disease symptoms are potentially the results of the plants healing response (sunken dead patches in bark). The HR state is accompanied by a secondary resistance response, SAR. SAR is triggered by endogenous hormonal Salicylic Acid in uninfected tissues and establishes persistent resistance to a wide range of subsequent pathogens.

There is another topic on this forum called "[Green Immune Function](#)" exploring all of this and I may copy, paste, edit, and reorganize this posting into a new one in that thread which outlines some of the stuff I have been reading about within this realm of inquiry and would like to discuss.

Karn Piana
Zone 7 Semi-Arid Steppe
Northern New Mexico

Edited 6 time(s). Last edit at 07/17/2018 09:42AM by Karn Piana.

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[Karn Piana](#)

[Aspirin Foliar Spray](#)

July 27, 2018 09:00PM

Registered: 5 years ago

Posts: 77

If anyone reading this topic has experience with diluted Salicylic Acid foliar sprays to induce SAR in order to combat *Pseudomonas* or *Erwinia* please share your thoughts. If you are reading this and have a tree afflicted with one of these pathogens and are willing to risk experimenting on it (SAR entails Hypersensitive Response) perhaps consider the spray formulation outlined above and sharing the results here. If you think this is not a good idea, please do not hesitate to share why.

Karn Piana
Zone 7 Semi-Arid Steppe
Northern New Mexico

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[Molly DellaRoman](#)

[Re: Willow Water and Systemic Acquired Resistance](#)

September 21, 2020 04:36AM

Registered: 5 years ago

Posts: 38

Hello,
Just found this conversation. Wondering if anyone has used willow water for recently bench grafted trees while waiting for them to take? We feel like the last few years, the root stock we've ordered from various sources (including Antanovka, M111, Bud9, G11 and even pear and plum root stock have had very poor quality root mass. Really puts the grafts behind and we've found we've needed to add an extra year in the nursery before we can sell the trees. Think we might have to give this a try. Maybe even a soak in willow water for a few days prior to grafting? Which leads to another question...does the time of year matter when you harvest willow branches for the tea? We graft early April but here in Downeast Maine, even the willow are not that far along yet.
If any more insights have been made in the last two years, would love to know! Or maybe the better conversation we need to have is where we should be getting our root stock from 🍷 smileys with beer
Thanks!

5 Star Nursery and Orchard
Zone 5, Brooklin, ME

[Reply](#) [Quote](#)

[Ben Raskin](#)

[Re: Willow Water and Systemic Acquired Resistance](#)

October 21, 2020 07:02PM

Registered: 3 years ago
Posts: 1

On similar theme, might get the same response from using a willow woodchip mulch (as well as the other benefits of mulch of course) - see this trial from UK last year which showed potential. [www.innovativefarmers.org] - suggests levels highest in early spring as sap rises, and need to use the chips fresh.

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[Molly DellaRoman](#)

[Re: Willow Water and Systemic Acquired Resistance](#)

October 26, 2020 05:33PM

Registered: 5 years ago
Posts: 38

Interesting. Thanks for your response!

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[Prairie Sundance](#)

[Re: Willow Water and Systemic Acquired Resistance](#)

June 08, 2021 07:33PM

Registered: 2 years ago
Posts: 47

My first reaction in reading this thread was that I could just begin adding Willow to my ferment, either chopped branches or bark strips, is there any reason the ferment process would destroy the acid? Or other obvious potential problems? I am having enough of a gut feeling to just do it that I will if I don't hear an argument not to, but may not have a good way to analyze the results to report back as our orchard is so small...

FRUIT CIRCUS

SW Wisconsin zone 5a/4b

Homestead/community orchard

2ish acres with half planted in 2018-2019 with heritage apples, alternating b118, antonovka, and seedling roots

Second half planted 2021-22 with plums, cherries, apricot, peach, pears, etc...

SE slope, trees are planted in contoured berms

Native prairie species for all ground cover

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