Speaker 1: The Missouri State Journal, a weekly program keeping you in touch with Missouri State University.

Donnelson: Over the last several years wine enthusiasts have cheered over the revelation that red wine has positive health benefits. While many assumed it was the grapes skins and juice providing the antioxidants the grape seeds took the back seat until now. I'm Nicki Donnelson, today my guests on the Missouri State Journal are Doctor Paul Durham, distinguished professor of biology at Missouri State University, and Jessica Cox, a graduate student in Durham's lab. They're here to share the good news about the recent research in grape seed extract. Durham, who also is the director of the Center for Biomedical and Life Sciences within the Jordan Valley Innovation Center tells us how they started.

Durham: Had a graduate student a few years ago that we were going to just isolate the skins of the grapes and look at that because that's what everybody was saying where the benefit was coming from, but then Mandy at the time was like, "Well, should we look at other things like the pulp, and the seeds?" And I thought, "Well, okay, yeah might as well just try this," and so as a graduate student she actually did the isolation of this skin, and the pulp, and the seed, and quite to our surprise the benefits were coming from actually the seeds. So, there was actually a higher level of polyphenolics and antioxidant compounds in the seeds than what we were actually seeing in the skins, which was really our first indication that there might be something here.

Donnelson: More recently, Durham notes, the National Institutes of Health, or NIH, has endorsed the use of grape seed extract as an anti-inflammatory and antioxidant product. When Durham and his lab decided to put it to the test they selected a commercially available product called MegaNatural by Healthy Origins, and they've been extremely pleased with the results.

Durham: When we wanted to see if there really was some truth to it, can it work to decrease inflammation in pain pathways? And the bottom line was that it worked incredibly well. We tested it in cell cultures. We actually then went on and did studies with it, and yes it's been quite remarkable.

Donnelson: Cox explains the NIH funded study that she's been working on.

Cox: We just recently got NIH funded research project to study grape seed extract. It's a three year grant and we just received this grant in October. We're just a few months in, however we have collected a lot of data so far. Main focus is on the temporomandibular joint disorder, so TMJ. We have looked at migraine model as well. My focus is also understanding the mechanism of how the grape seed works.

Donnelson: Basically Cox says, they're looking to see the abilities of grape seed extract. She says it inhibits pain signals, which means you feel less pain. Durham elaborates on the findings.

Durham: Most of the properties that we've discovered deal with proteins known as phosphatases that are actually anti-inflammatory proteins. So, we've just added to the story. You think of a vitamin C as an antioxidant, so we knew that that property was there. What we didn't know is that it was actually regulating enzymes that control pain and inflammation.

Donnelson: Durham says that in addition to testing the commercially available product the team decided to collaborate with the vineyards at Missouri State's Mountain Grove campus to expand the study.

Durham: What we wanted to do is go back to our roots so to speak, and see whether or not our grapes, we would actually be able to isolate the compounds that would be as effective as to what they were getting from the Healthy Origins product. So, we set up this nice collaboration with the Mountain Grove this year, and we've literally got a ton of material from basically the Mountain Grove campus. After they got done pressing the grapes for their wine processing and stuff we went and got the skins and the seeds, and we're now working with a group out in San Diego to actually isolate out the polyphenolics and the other beneficial compounds from the skins and the seeds. What our hope is, is that we actually have our own product. So, the students are playing active roles, and basically they helped with all the drying and the processing and stuff, but then several students are actually involved in actually doing the analysis, so look at the polyphenolic content to look at to make sure there's antioxidant potential.

Donnelson: Seeing how beneficial grape seed extract could be when taken in capsule form they're now testing it in bandage dressings. It's not the labs first venture in to this arena as they had previously worked on projects that would help those injured heal faster by having a bandage that had medicine built in to the fabric. He explains the outcomes.

Durham: Because of the antioxidant potential and the anti-inflammatory potential it kind of made sense to maybe incorporate the grape seed extract in to a wound formulation. So, what we've done is we've actually partnered up with Peter Grossman, plastic surgeon out of the Kansas City and LA area, and basically we're making bandages that actually incorporate the grape seed extract in them. The preliminary results that he's giving back to us is that it's working remarkably well. We had done some in lab experiments to show that this was probably going to be a very beneficial type of thing to add to a wound dressing, but we've been very pleased that basically it's working in a human model basically with these burn victims, and stuff, that they're actually using these bandages and it's showing to be efficacious.

Donnelson: That is Doctor Paul Durham and Jessica Cox from the Center for Biomedical and Life Sciences at Missouri State University. I'm Nicki Donnelson for the Missouri State Journal.

Speaker 1: For more information contact the Office of University Communications at 417-836-6397.