Where Does Pectin Come From?

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Each year as various fruits and berries come into season, many of us enthusiastically embrace what is an annual event in our homes. While jam making may be a rather tedious process, there is nothing quite like homemade preserves on warm toast to make you appreciate the rewards of your labours.

The ingredients necessary for making most jams are quite simple. You need the fruit itself, some lemon juice or vinegar to acidify the mixture, sugar, and of course pectin.

Sugar is often considered as being present only for its sweetness, but its role is really not all that simple. The sugar also binds the water that is present in the fruit and makes it unavailable for the growth of microorganisms that may be present. Of course, most of these pesky microbes will be killed in the heating step, and the acidification helps create an environment that is unsuitable for their growth. However, we also need to worry about any microorganisms that may get into the jam jar after it is opened and in use.

Pectin consists of many small molecular groups linked together to form a somewhat complicated long-chained polysaccharide molecule. Pectins are water soluble and are a healthy fibre source in your diet. They are added to jams and jellies to help form the required gel structure. Without the correct amount of pectin present, the jams would tend to be runny, or experience what is referred to as “syneresis” where the water oozes out of the gel structure.

For convenience, most jam-makers purchase their pectin as a ready-to-use liquid or powder preparation. There are even pectin formulations available for anyone who wants to cut down on sugar levels. These basically compensate for the sugar reduction by increasing the strength of the pectin.

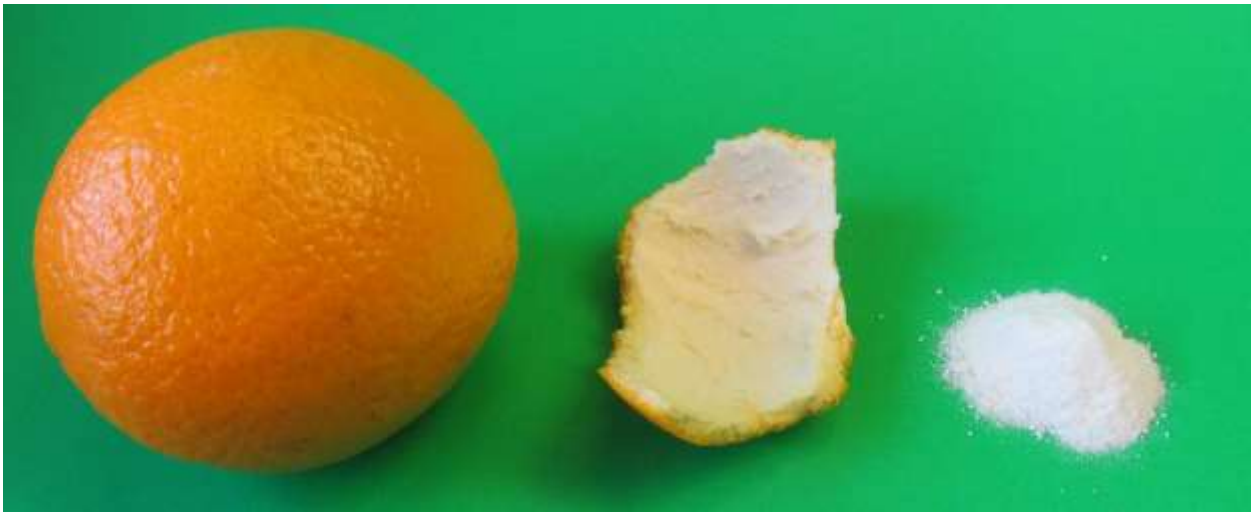
Being the curious type, I often wonder where we get the ingredients used in our foods – and pectin was no exception. One of the first sources of pectin was apples.

Having worked for General Foods in Cobourg, Ontario, for fourteen years, I was familiar with the fact that the company site was originally home to the Douglas Pectin Plant. It was set up around 1919 by Robert Douglas. Mr. Douglas coined the familiar tradename “Certo” indicating its use would make certain that jams would gel properly. Cobourg was a logical place for a pectin plant due to the abundance of apple orchards along that particular stretch of the north shore of Lake Ontario. Vinegar was another product from the apple processing activities.

Apples contain about 1% to 1.5% pectin by weight. After the juice is extracted, the pressed solids that remain are called “pomace”. It is from this apple pomace that pectin can be extracted relatively easily. Some of you may actually use apples as a source of pectin in your recipes instead of relying on commercial pectin products.

Over the years, the source of pectin shifted from apples to citrus fruits such as oranges which may contain 3% or more pectin on a weight basis. The pectin is found mainly in the “albedo” or “pith” of the orange. This is the white layer between the peel of the orange and its fleshy portion. There are procedures available on the Internet for extracting pectin from the pith of oranges. They involve separating the white pith from the peel, soaking it in lemon juice, and boiling the material in water. This duplicates the acid extraction step used in industrial processes. By squeezing the mixture through a fine mesh cloth, the pectin-containing liquid can be obtained. Further processing can be done to concentrate the pectin or prepare a powdered form of it.

On a dull, dreary afternoon a few years ago, I took several thick-skinned oranges and did a pectin extraction in a pot on the stove. The results were far from mind-boggling and the yields of pectin were very low. However, the exercise was an academic success - which is the way I rationalize a lot of things I do. A few simple tests confirmed that pectin was indeed present. Considering the time and effort, plus the energy expenditures and the uncertainty of the final extracted material, we should be very grateful for being able to simply go to the grocery store and buy the convenient, ready-to-use pectin.



Oranges (left) have a layer of white pith called the “albedo” (centre) from which pectin (right) can be extracted.