

Agaricus barrowsii n.s.p.

During my sojourn at the University of Michigan, Dr. Alexander Smith suggested that I might begin to review the herbarium material of *Agaricus* in the University of Michigan Herbarium. Dr. Smith had studied *Agaricus*, especially in the Western United States, and published a paper on type studies in 1938. I was at once struck by the abundance of material in the herbarium and in particular by larger collections coming from New Mexico collected by Chuck Barrows of Santa Fe.

After developing anatomical descriptions of a number of Chuck's collections, one in particular caught my attention. This was labeled an *Agaricus subnutans*, by Dr. Smith. Comparison of New Mexico material with the type of *Agaricus subnutans* suggested a number of discrepancies. The basidiospores of *A. subnutans*, averaged larger and more rounded than those collections from New Mexico. The Schaffer reaction is a curious macro chemical reaction involving a streak of dilute aqueous nitric acid drawn across the cap of both dried and fresh mushrooms and another streak drawn at right angles to the acid with dilute alcoholic aniline oil. The intersection of lines turns red if positive, Section Arvensis, or yellow or no color if negative. This test was positive for *Agaricus subnutans*, and that species *also* occurs in oak woodland.

It was clear to me that Barrows' numerous collections were of an undescribed species and that it was associated with the piñon-juniper woodland of the Southwest. To date, I have never encountered this species anywhere but in northern New Mexico. Given the wide distribution of piñon juniper woodland, it would seem likely to be widespread. However, if it is specific for the Santa Fe group of sandstones in the area, then it might very well have a limited distribution. One problem in these sorts of situations is that the window for fruiting is relatively limited, restricted to high rainfall and humidity in midsummer. Cooler temperature or lack of moisture preclude *A. barrowsii* for fruiting. It is also very

susceptible to grub damage and the fruit bodies are quickly consumed. One can occasionally find specimens that have dried in place, leaving perfectly preserved specimens for the fall so abrupt can the change from wet to dry seasons occur.

The relationship of *Agaricus barrowsii* is rather obscure. It possesses a curious Schaffer reaction, usually negative, but occasionally positive where yellow spots develop on the cap. The cheilocystidia are of the chain sort called cheilocatenulae, characteristic of Section Arvensis. The spores also are broadly oval and in the middle range of sizes for *Agaricus*. It lacks an almond odor, but possesses a double annulus, again much like the Arvensis group.

I dedicate this distinctive mushroom to Chuck Barrows who first discovered it, an indefatigable collector, raconteur, and friend of many years.

Note: Another provisional name for this species is *Agaricus pinyonensis*.

Bill Isaacs
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