

Development of *Camellia oleifera* as a new oil seed crop for the Southeastern United States

Dr. John M. Ruter, Professor
University of Georgia
Department of Horticulture
Coastal Plain Station
Tifton, GA 31794
ruter@uga.edu

The tea oil camellia, *Camellia oleifera* Abel., is used extensively in the orient for cooking oil, inks, lubricants, and cosmetics. After the oil has been extracted from the seed the remaining seed cake can be used for animal feed, fertilizer, and development of natural pesticides. Approximately 1/7th of the Chinese population uses camellia oil as their primary cooking oil. The oil is similar to olive oil, having a high % of oleic acid (75-80%). High oleic acid oils are healthy in that they help lower cholesterol and triglycerides in the blood. Camellia oil has a higher burn temperature than olive oil, thus it does not “smoke-out” as easily when used for cooking. Oil content of the seed is ~ 50%. It is my hope that one day tea oil from camellias will have its fair share of shelf space in U.S. grocery stores just as olive oil does today.

Commercial production in China has decreased while demand has increased. Currently, tea oil camellias are produced on ~9.1 million acres in China. No production of tea oil is known to have occurred in the United States. Tea oil camellias may grow upwards of 15’ or more if not pruned. Much of the production in China is from wild-collected seedlings. Grafting of new cultivars is becoming popular as new orchards are developed. With loss of traditional agricultural commodities and low prices, growers in the southeastern United States are looking for alternative crops. Here in the southeast I envision growing tea oil camellia in orchards similar to the way blueberries are grown. Plants bloom in the fall and the fruit is harvested the following October. It may be possible to use blueberry pickers or similar equipment to mechanize harvesting. The fruit is allowed to dry and the seeds are removed for extraction of the oil. Tea oil camellias are very tolerant of a wide range of soil types and should do well on upland sites which support traditional tree or row crops.

Research was initiated in 1999 to develop *Camellia oleifera* as a commercial oilseed crop in the southeastern United States. Four seed sources were located in the United States. Initial studies indicated that stratification improved rate and uniformity of seed germination. A great deal of research has been conducted since 1999 to determine the best methods for producing container grown plants which can then be transplanted into the field. Further work is needed on propagation once cultivars are selected.

In 2001, I acquired seed from 18 elite selections of camellias grown in China for oil production. About 50% of the seedlings from elite selections make good plants, therefore cultivar selection is necessary. As I was not allowed to acquire scion wood of cultivars, seedlings were my only option. Nine were selections of *C. oleifera*, while others

included species such as *C. semiserrata* and *C. yuhsienensis*. Plants were germinated and shifted to #1 containers before being field planted. These seedlings have been planted at the Coastal Plain Station in Tifton and at a farm in Wrightsville, GA. The planting in Wrightsville consists of ~1000 seedlings from 23 sources of seed and was planted in fall of 2003 or 2004. Many seedlings flowered for the first time in 2004-2005. Plants will be evaluated for several years and selections will be made for oil production and quality, disease and insect resistance, flowering and fruiting dates, ease of harvest, growth characteristics, etc.. Seedlings from the original four seed sources located in the U.S. have been planted in Tifton.

In 2002 I visited Zhejiang Province, China to see how the crop is grown and processed. Research collaborations are being initiated to evaluate the properties of tea oil from camellias and to look at additional uses for this new crop. Maximum recorded yield in China is 750 kg of fruit per hectare which translates to ~80 gallons or 300 liters of tea oil per acre. Tea oil camellia has potential to be grown from coastal North Carolina to eastern Texas. While we are still several years away from releasing cultivars, we hope to be putting out field trials in the southeastern U.S. within the next few years.