ABSTRACT

Five edible plant species native to the United States were scored using the United Plant Savers’ At-Risk Tool. This tool is used to quantify and compare vulnerability to overharvest for wild collected medicinal plants. The species chosen, Tomatillo Physalis longifolia, Persimmon Diospyros virginiana, Pawpaw Asimina triloba, Chokecherry Prunus virginiana, and Prairie Turnip, Petidiolum esculentum all have traditional uses as both food and medicine. These species have been the subject of recent investigations into their promising chemical compounds and medicinal properties. Scores from the At-Risk Tool will help determine if wild harvest can be sustained if one of these species becomes the next “anti-cancer super-food”.

INTRODUCTION

THE RATIONALE

“Super Foods,” “-oxidant Rich,” “Natural Secret of Youth,” “Eat your way to health?” – interest in the healthful compounds of plant foods is everywhere and seems to be growing. Meanwhile, concern about the ability of the environment to sustain plant populations is also growing. Prompted by interest in the intersection of these areas -- wild harvested medicinal foods, we set out to determine if the United Plant Savers At-Risk Assessment tool could be used to assess vulnerability to over-harvest of five native, edible, and medicinal plant species.

THE TOOL

The United Plant Savers is a non-profit organization dedicated to protect native medicinal plants of the United States and Canada. They have created an adaptable tool used to quantify and compare vulnerability to overharvest for wild collected medicinal plants. The At-Risk tool asks a series of questions about the species in five categories: life history, effects of harvest on the plant, abundance and range, habitat, and demand.

RESULTS

The “vulnerability score” of all five plants assessed was lower than ginseng, an “at-risk” medicinal species and higher than yarrow, a weedy species (Table 1). Prairie Turnips’ relatively high vulnerability could be largely attributed to root use and destructive harvest of a long-lived perennial. Differences among the other edible species, all of which rank as less vulnerable than Echinacea, are due mostly to size of range and habitat specificity. Scores of all of these species would be higher if alternative back or root uses were considered rather than fruit consumption.

CONCLUSIONS

Our experience suggests that the United Plant Savers At-Risk Assessment Tool can be used for setting conservation priorities with edible plants as well as with more traditional medicines. While interest in food medicine and wild harvest continues to grow, we encourage harvesters and product promoters to use the tool and consider issues of sustainability before suggesting something is the next wild-harvested super-food.

REFERENCES


Persimmon Diospyros virginiana is a deciduous tree native from Kansas to Connecticut to Florida. This species is in the ebony family for its wood. The wood has been known to be used to make golf club heads and textile shuttles. The unripe fruit and bark have been traditionally used to treat fever, diarrhea, and hemorrhage (Neson 2013). Besides the fruit tasting delicious when ripe, it is known to have polyphenols especially tannins which are very good antioxidants. Persimmons also possess a high composition of dietary fiber and minerals; all three are known to help fight heart disease (Nutrition-and-you).

PRAIRIE TURNIP

The Prairie Turnip Petidiolum esculentum is an herbaceous perennial. It is native to the plains of central North America. The tuberous root of this species is harvested and eaten. Native Americans of many tribes were among the first to use the prairie turnip as food medicine. They would use the root to treat sore throat, gas related pains, and to help soothe sprains and fractures. The Prairie Turnip root is high in protein, fibers, and unusual complex carbohydrates (Castle 2006). Crow Elder Alma Snell used prairie turnips to treat irritable bowel syndrome and diarrhea, and hemorrhage (Neson 2013). It is very tolerant and actually thrives in disturbed areas. It has fruit that is similar to the tomatillo one can purchase in grocery stores. The fruit is tart when eating fresh but becomes sweeter when dried. The fruit is very tolerant and actually thrives in disturbed areas. It has fruit that is similar to the tomatillo one can purchase in grocery stores. The fruit is tart when eating fresh but becomes sweeter when dried.

PERSIMMON

The Persimmon Diospyros virginiana is a deciduous tree native from Kansas to Connecticut to Florida. This species is in the ebony family for its wood. The wood has been known to be used to make golf club heads and textile shuttles. The unripe fruit and bark have been traditionally used to treat fever, diarrhea, and hemorrhage (Neson 2013). Besides the fruit tasting delicious when ripe, it is known to have polyphenols especially tannins which are very good antioxidants. Persimmons also possess a high composition of dietary fiber and minerals; all three are known to help fight heart disease (Nutrition-and-you).

Pawpaw Asimina triloba is a temperate tree that produces the largest edible fruit in North America with a ton of seeds inside. Some Native American tribes cultivated the pawpaw for fruit and are responsible for its wide range of habitat. It is well known in the mid-west to eastern parts of the U.S. (Immel 2013). The fruit tastes like the mix of a banana, mango, and pineapple. This fruit is high in amino acids, carbohydrate, dietary fiber, protein, and vitamin C. The Pawpaw has been recently studied for its high anti-oxidant levels, particularly the phenolic compound in the fruit (Kohayashidi 2012). Anti-oxidants protect the body by scavenging for free radicals in the body. These radicals can damage cells thus plays a role in cancer.

Pawpaw Asimina triloba is a temperate tree that produces the largest edible fruit in North America with a ton of seeds inside. Some Native American tribes cultivated the pawpaw for fruit and are responsible for its wide range of habitat. It is well known in the mid-west to eastern parts of the U.S. (Immel 2013). The fruit tastes like the mix of a banana, mango, and pineapple. This fruit is high in amino acids, carbohydrate, dietary fiber, protein, and vitamin C. The Pawpaw has been recently studied for its high anti-oxidant levels, particularly the phenolic compound in the fruit (Kohayashidi 2012). Anti-oxidants protect the body by scavenging for free radicals in the body. These radicals can damage cells thus plays a role in cancer.

ACKNOWLEDGEMENTS

United Plant Savers Project Completion Grant and SWOSU Arts and Sciences Student Enhancement Grant