



Invited Commentary

The utilisation of wild foods in Mediterranean Tunisia: commentary on the identification and frequency of consumption of wild edible plants over a year in central Tunisia: a mixed-methods approach (Dop et al., n.d.)

The North African country of Tunisia is known for its rich, diverse Mediterranean cuisine, influenced by its long diverse history of inhabitants and location on the Mediterranean Sea. Like many of the other seventeen countries considered to be part of the traditional Mediterranean history, its dietary habits revolve around seafood, fresh vegetables and olive oil, with Tunisia being the world's fourth-largest producer of olive oil.

The *EAT-Lancet* Commission report on healthy diets from sustainable food systems argues that a Mediterranean diet is not only critical for promoting human health but also for planetary health due to the pattern and composition of traditional diets of the region⁽¹⁾. The Mediterranean dietary pattern is usually one that is dominated by plant-based foods, such as fruit, vegetables, legumes, nuts and seeds and wholegrain cereals; seasonally fresh and locally grown foods; olive oil as the main source of oils; fish and seafood; moderate dairy products, poultry and eggs; minimal red and red processed meat and moderate intake of wine with meals^(2,3).

Many studies have shown that adherence to a Mediterranean-like diet is associated with a significant improvement in health status including reduction in overall mortality from cardiovascular diseases such as cancer, Parkinson's disease and Alzheimer's disease⁽⁴⁾. However, its associations in preventing and protecting against overweight and obesity, as a risk factor of non-communicable disease (NCD), show some positive but inconsistent trends⁽²⁾.

Like everywhere in the world, most countries, including Tunisia, are undergoing a nutrition transition, much of this due to urbanisation, globalisation and changes in food systems including consolidation, concentration and industrialisation⁽⁵⁾. The most significant epidemiological outcome of this transition is increasing BMI prevalence and increased risk of NCDs. Tunisia is not immune. Mean BMI, as well as diabetes, in Tunisia has been steadily rising since the 1980s in adult men and women and among adolescent boys and girls. Thirty-two percent of women and 16 % of men are obese and this number is expected to rise by 2025, with very little probability of meeting the

global NCD targets set out by the WHO⁽⁶⁾. Thus, while the Mediterranean diet of Tunisia is one that has been considered health-promoting⁽⁷⁾, the trends show that these diets are disappearing and being replaced by unhealthy dietary patterns⁽⁸⁾.

Some papers have proposed that biodiversity, the diversity of cultivated or wild genetic resources (varieties, breeds) and species used for food, fodder, fiber, fuel and pharmaceuticals, is critically important for the conservation of the local, traditional Mediterranean diet. It has been suggested that the Mediterranean diet is one that is built not only on the classical dietary pattern but also on the socio-cultural heritage and agro-ecological environment and biodiversity in which these diets are sourced from^(9,10).

The study in this issue by Dop et al.⁽¹¹⁾ sought to identify the frequency of consumption of 'wild' edible plants consumed by women in rural Tunisia. They also studied the availability of these foods by seasons, within their immediate environment and in markets, and characterised the perceptions of their use and mainstay within diets. They utilised qualitative methods including interviews and focus groups, used ethnobotanical tools to collect and identify wild plant species, performed market surveys to assess availability and access and carried out FFQs. FFQs were used to capture longer recalls of diets retrospectively and allowed for the inclusion of these often forgotten or neglected wild foods.

Through interviews, focus groups and ethnobotany methods, between 30 and 35 edible, ubiquitous wild species, were identified. The availability of these foods in the rural landscape was highly variable and dependent on seasons and water availability. Very few of these species were found in the local markets. While most women knew of these plants, found them tasty and healthy and did not perceive them to be species only consumed during hunger times, most of these foods were not readily consumed as part of the habitual diet. A study in the DR Congo similarly showed that study participants did not make use of the huge diversity of wild edible plants (that had health-promoting nutritional characteristics and were freely



available near homesteads)⁽¹²⁾. Similar results were found in southern Benin⁽¹³⁾. The question is, why?

The authors hypothesise several reasons for their low consumption in Tunisia, but follow-up research would be critical to better understand their nutritional value and why these foods are not readily consumed. The authors do hypothesise a few potential reasons. First, some of these species are difficult to harvest. Second, they are not always available due to their seasonal variation. And last, many are not available in the local markets, whereas cultivated vegetables are readily available. While these wild foods were not perceived as 'food for the poor', which often poses as a significant hurdle for consumption, other studies have shown that decreased consumption of local, wild foods can be attributed to weak integration in market economies and globalisation, land clearing for agriculture, difficulties in accessing land due to land tenure issues and high workload to collect, process and prepare these foods^(14,15). Other studies have shown globally that intensification of agricultural landscapes has increased, mainly due to monocropping of major staple grains and cash crops. This has led to a substantial reduction in the genetic diversity of domesticated plants and animals in agricultural systems^(16,17).

While vegetables remain a cornerstone of what is considered a healthy diet, consumption of these nutrient-dense foods remains low (Afshin *et al.* 2019). In fact, the global food supply on vegetables has been insufficient in providing vegetables (and fruits) to meet demand now and into 2050. If everyone were to follow the WHO recommendation of 400 g/person/d of fruits and vegetables, 1.9 billion people would not have the access – the food supply just cannot keep up⁽¹⁸⁾. It is reasonable to assume that wild foods could make a contribution to filling this gap; however, as trends suggest, most of these wild foods are not consumed in the daily diet of the many populations, particularly those living in rural places or near forests and landscapes that provide these foods, for a variety of reasons.

For central, rural Tunisia, while the knowledge and positive perception of these wild, edible foods could spur the promotion of their consumption through mass media campaigns, there need to be structural adjustments to market places, with incentives for retailers to promote these foods, which could have a regressive effect on food insecure populations who potentially rely on these 'free' foods. There are also land use issues associated with the availability and access to these foods and the ever-changing agriculture intensification landscape that many countries are undergoing. Land-use changes, due to agricultural expansion, residential and commercial development and deforestation are associated with declining biodiversity and wild foods in most parts of the world⁽¹⁹⁾. The question remains on how to balance the growth

potential to feed the world, while sustainably conserving, using and promoting wild biodiversity that is central to the disappearing Mediterranean diet.

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