

also show stronger flavor and higher functional value after drying (Arvaniti et al., 2019). In Smyrna-type figs, dry fruit weight is significantly correlated with leaf density, fruit length, and fruit width, indicating that vigorous growth and larger fruit size often lead to higher dry yield (Khadivi et al., 2018). Fruit geometry, peel characteristics, sugar content, and phenolic compounds tend to change together, and can be used as key combined indicators to predict dual-purpose potential.

5.3 Screening and identification of high-performance dual-purpose varieties

Dark-skinned varieties from Algeria and Morocco show good fruit traits, high consumer acceptance, and relatively high levels of phenolic compounds and antioxidant capacity. These varieties are suitable both for fresh consumption and for producing dried products with high nutritional value (Tikent et al., 2022). Some underutilized Italian varieties, such as ‘Processotto Nero’, ‘Natalese Nera’, and ‘Verde di Natale’, perform well in fruit weight, TSS, peelability, and maturity time. After processing into dried fig slices, they also receive high sensory scores, indicating good processing adaptability as well as good fresh-eating quality (Ferrara et al., 2023) (Figure 2). Varieties ranked highly in comprehensive evaluations (such as ‘Bursa Siyahi’, ‘Yediveren’, elite local genotypes from Turkey and Bangladesh, and ‘Mlouki’ and ‘Assal’) are also considered important dual-purpose candidates when drying conditions are available (Maatallah et al., 2024).



Figure 2 Drying process and product transformation of underutilized local fig cultivars into fig disks (Adapted from Ferrara et al., 2023)

5.4 Trade-off between fresh quality and drying adaptability

Traits preferred in the fresh market (such as easy peeling and obvious skin cracking) may increase the risk of damage during sun drying or storage, while crack-free skin is more favorable for dried product quality. Highly mature fruits with high SSC and soft texture have advantages for fresh consumption, but their low mechanical strength makes them more prone to damage during handling and may affect drying uniformity. In contrast, fruits with slightly firmer texture and higher dry matter content are more suitable for dehydration processing (Shishkina et al., 2022). Although higher phenolic content and dark skin color can improve nutritional value, improper control during drying may intensify browning (Uslu et al., 2024).

6 Case Study of Dual-Purpose Fig Varieties

6.1 Evaluation of representative fig varieties

‘Brown Turkey’ is generally regarded as an early-bearing and high-yielding variety, showing medium to relatively high productivity along with desirable fresh fruit quality. Its fruits are of moderate size, have relatively high soluble solids content, and perform well in consumer evaluations in terms of flavor and texture (Koly et al., 2024).