

## Doubling farmers' income through value-addition

To capture additional price by adding value to farm products on-the farm is the dream of many producers. To make their dreams true, ICAR-CIAH, has developed various postharvest technologies which could be applied on- or off-the farm with minimal requirements of processing equipment. The developed technologies include pre-harvest treatment technologies for uniform and early ripening of phalsa and date palm; postharvest treatments for uniform and faster ripening of bael fruits; packaging technologies for ber, datepalm, mulberry etc.; protocols for development of fruit beverages from arid horticultural crops such as bael, ber, jatikhatti, karonda, mulberry, phalsa, cactus pear etc.; technologies for on-farm production of concentrated vegetables; development of diversified processed products like aonla mouth freshener, kachri based ready-to-use curry powder, kakdi ketchup, bael fruit powder, date and khejri biscuits, etc. In addition, an extraction protocol for natural food colorant -lalima from karonda fruits has been developed. Most of these technologies are under final stages of refinement and will be ready for technology transfer to farmer groups, entrepreneurs and small-scale industries for commercialisation.

**I**N arid regions, there is plenty of solar radiation coupled with low relative humidity allowing value addition through dehydration technique which is quite common for arid vegetables and spices. Many dehydrated products such as sangri, methi leaves, coriander leaves, kachri are available in the market. For arid horticultural crops, value addition is indispensable for their appropriate utilization. However, postharvest techniques should be commercialized to fetch high price of produce in the market. Some of the major areas under which value addition programmes are being taken up at ICAR-CIAH, Bikaner are discussed.

### VALUE-ADDITION

#### Fruit Beverages

Fruit juices are popular refreshing drinks among all age groups owing to their attractive colour and taste, and this popular choice beverages are infact associated with multiple health benefits. In addition, there is a huge variation in the diversity of fruits, some of them with many varieties, which grow in different parts of the world, and that can differ greatly in composition from each other. The hot arid regions of India are blessed with rare fruits, viz. datepalm, bael, karonda, phalsa, mulberry, khirni etc. most of which are unavailable in other parts of the country and these fruit crops are under-utilised inspite of being well known for their nutraceutical and bio-active components. In addition to these, there are other

#### Ber Handling-cum-Storage Box

A new handling cum storage box has been designed for improving consumer appeal and acceptability. The box (23 cm × 23 cm × 4 cm) is made using three ply corrugated fiber board (CFB) material laminated on outer side and is equipped with 1% ventilation for proper exchange of



gases and diffusion of transpired water. Inside box, a ridge-furrow type septal frame is designed for holding of fruits in appropriate place. The top cover of box contain a transparent window slit (10 cm × 8 cm) showcasing freshly packed ber fruits. The designed box could hold 750-800 g of fresh ber fruits. Freshly harvested mature green ber fruits (Kaithli) is found to be successfully handled and stored for 4 days under ambient conditions. A labelling provision is made on one side of the box which gives the basic information, viz. variety of ber, net weight, date of packing etc.