Abstract: Dendropanax morbifera Léveille, an endemic species in Korea, is best known as a
tree that produces a resinous sap. Although D. morbifera is used in folk medicine, its biological
activities are poorly understood. In this study, the methanolic extracts of D. morbifera branches,
debarked stems, bark, and two different stages of leaves were evaluated for anti-oxidant activity
and anti-cancer potential. The debarked stem extract exhibited strong
1,1-diphenyl-2-picrylhydrazyl (DPPH) scavenging activity and reducing power compared with
other samples. In addition, the cytotoxic activities of these extracts were investigated in human
tumour cell lines. The results suggested that the extracts of debarked stems, green leaves, and
yellow leaves were the potent source of anti-cancer compounds, particularly in Huh-7 cells.
Furthermore, treatment with the extracts of debarked stems, green leaves, and yellow leaves
caused an increase of apoptotic or senescent cells in Huh-7 cells. Twenty-four hour treatment
with debarked stems extract resulted in the strong induction of p53 and p16, whereas both leaf
extracts inhibited the activation of ERK. The debarked stems and green leaf extracts reduced Akt
levels in Huh-7 cells, indicating that D. morbifera extracts caused the activation of p16 and p53
pathways. This, together with the inhibition of Akt or ERK signalling, resulted in suppression of
Huh-7 cell proliferation. These results suggest that methanolic leaf and debarked stems extracts
are a source of anti-oxidant and anti-cancer compounds, and could be developed
as a botanical drug. Copyright © 2013 Elsevier Ltd. All rights reserved
Hovenia dulcis: Hovenia dulcis, the Japanese raisin tree or oriental raisin tree, is a hardy tree found from Asia, over Eastern China (萬壽果) and Korea (로시도) to the Himalayas (up to altitudes of 2,000 m), growing preferably in a sunny position on moist sandy or loamy soils. The tree has been introduced as an ornamental tree to several countries, and the fruit is also edible. It is considered being one of the most pervasive invader in Brazilian subtropical forests.

Description: Tree, rarely a shrub, deciduous, to 10–30 m tall. Branchlets brown or black-purple, glabrous, with inconspicuous lenticels. The glossy leaves are large and pointed. The trees bear clusters of small cream-coloured hermaphroditic flowers in July. The drupes appear at the ends of edible fleshy fruit stalks (rachis), which is a type of accessory fruit.

Uses: The fleshy rachis of the infructescence is sweet, fragrant and is edible raw or cooked. Dried, they look and taste like raisins. An extract of the seeds, bough and young leaves can be used as a substitute for honey and is used for making wine and candy. An extract of the leaves contains hodulcine, a glycoside which exhibits an anti-sweet activity. The timber is fine and hard and is used for building construction and fine furniture. It has been used in traditional Japanese, Chinese, and Korean medicines to treat fever, parasitic infection, as a laxative, and a treatment of liver diseases, and as a hangover treatment.