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Docynia indica superior genotypes selection and their evaluation in clone trials in Northwest Vietnam

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Son tra (*Docynia indica* (Wal.) Decne) is found in the high-elevation mountainous areas, above 1000 masl, in China, Bhutan, India, Myanmar, Nepal, Pakistan, Thailand and Northern Vietnam. Analysis of Son tra fruit showed that it contains polyphenol is with antioxidant properties that benefit human health. Son tra has been used prominently in the reforestation program of Vietnam. The area of plantation has expanded rapidly, using unimproved local seed sources. Breeding to improve fruit value could therefore contribute to the livelihoods of farmers and fruit processers in the mountainous area in Vietnam. The potential to convert existing unimproved plantations by top-working with scion material from selected clones was confirmed in field trials.

Dominant trees were selected based on their fruit yield and fruit morphology. Scion material from 11 selected trees was grafted onto seedling rootstocks and the growth and fruit yield in trials was monitored. Fruit quality of 11 selected clones and eight unselected control trees was evaluated by a panel of 19 experienced farmers and fruit traders. The farmers and buyers' assessment indicated that there was clear significant difference between genotypes in their sale price, fruit size, fruit attractive, sweetness, sourness but not acerbity. There was a strong correlation between estimated price and fresh fruit attractiveness.11 clonal seedlings from Tuan Giao population planted in the trials in Tuan Giao district, Dien Bien province had shown the quick growth and early bearing fruit at 3rd year. The average fruit yield at year 5 was 21.9 kg per tree twice that of seedling trees which typically yield 11 kg per tree at year 7.

36 plus trees were selected based on fruit's yield and quality. From selected trees, the grafted seedlings were produced and on-going tested in three provinces, Dien Bien, Son La and Yen Bai.

Further selection of Son tra plus trees should be led by farmers based on market demands in order to reach the highest value. Research to rank and select the best clones on their market value nutritional value, pest and disease resistance, is recommended for profitable expansion of Son tra growing.