
GERMPLASM OF WILD FIG AND CAPRIFICATION PROCESS ON CULTIVATED FIG

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ABSTRACT

This project is part study: identification, collection and conservation of wild genetic resources in orchards. The aim of the study is finding suitable for caprification genotype, the recorded, evaluated and described. They were taken part in the study population in the different caprifig in three areas of the country, in the northwest, central and southwest the country. In these areas about every 50-60 m found genotype of wild fig. Plants are vigorous, with dense crown, leaves with two lobes around 20-25% of the leaf and 5 lobes about 50-55% of the leaf. Are bundled leaf leaves base. Dominance of leaves with 3, 5 and more lob. Fruit with different form such is: aspheric, pyriform, oblate, oval, etc. Found the genotype with different color fruit. Fruits in the period of April-May - June are dark green in color, annealing occurs in 1-25 June, with oblate shape to pyriform, 5x4.5 cm dimensions and weight 90-120 gr. Color fruit varion from cream to purple color, interior color is green and purple stained blown. Those fruit are don't edible but we can founded some wild fig with size fruit, white color, black color, and violet color, which can eat, but don't have taste of cultivate fig. From investigate we have finded a reach germplasm with populate more forms; every wild tree is personal individual. Except morphological characteristics on the totally, She has especially characteristics on form and size of leaves for each genotype. From individual investigated, has big sycon genotype (4 x5.5 cm), and small (2.5x3.5cm), has there with more flower galikole about 800-1200, and other 300-400 galikol flower. Big sycon has a lot of galikole which down star in ostiol channel. Report of male flower with galicole flower is 1: 4. Value of caprific depends from quantitative and qualitative of sycon production. We have study which varieties have need for pollination, if this doesn't happen, flowers taken down and not mature, for example: Perdhluk, Kraps, Bajun, etc. We have analyzed with statistical method at all indexes.

Keywords: Profig, Baffer, Color Fruit, Blastophaga

1. INTRODUCTION

The wild fig (**2n=26**) is under sort of Ficus species. Spontaneously sprout from seeds figs cultivated or spontaneous, that the distributed eaten by birds. Germinate and grow in dry places, ruins wall, crack reef, and old trees, so called the caprifig, words composed of capra and fig – goat.[Osmani, 2005] goat. We view differs from the fig tree crops, because in winter there are grains in the bare branches of leave. A caprifig tree produces three crop cycles of fruit each year, profig fruit in summer, mammon in fall, mamme fruit in winter. The main caprifig crop, profig

coincides with the main summer crop cycle of female edible fig tree [Caliskan,2016].Caprification is a common practice in all fig growing regions and is an fruit set and quality of edible figs [Condit, 1955, Aksoy,200] Caprifig sycons form three generations, the verification one after another, who called profig, mammon and mamme. Capri fig have sycons the form of different sizes in each form sycons size of each, generation of the same plants, it is noted in all caprifig there sycon of various shapes such as oval, spheroid, etc. Sycons of large floral profig channel have abundant amounts of male flowers was also down the channel of the eye. Capri fig value is determined by the quantity and quality of production sycons. Their feature is that the generations of sycon differently caprifig comes on time. During the whole year and herbal calendar caprifig we have the crown sycon different stages of development. Time of departure and their development is harmonized with the annual cycle and pollinate blastofages of the cultivated fig. Fig spring begin in the autumn, the leaves differentiated pit, on top of the branches year. Summer fig is the second generation. Have round – conical shape, tail length average. In comparison with profig, are very few in number. Winter fig is the third.

2. MATERIALS AND METHODS

Methods of work rely on the wild fig descriptor in the determination of wild fig tree growing regions. In this study are exploration of wild figs, phenological phase indexes have been analyzed, investigated and observed throughout the cycle and are analysis in all indices. For each stage, indexes such as fruit size, fruit diameter, number of insects, three-stage fruit color, fruit weight at different times, ostrich size, amount of flowers (female and male), quantities of flowers in masculine flowers etc.

For leaves (shape, length and width of the dimension); fruits (dimensional shape, length and dimensionality, three-phase colored fruit and random color)

3. RESULTS AND DISCUSSION

The wild fig ($2n = 26$), has origin sprout from seeds cultivated figs or spontan, germinate and grow in dry, rock, side walls, old trees, so called caprifig. Wild fig is only only for caprification and don't eat, the second use is industry destination (jam).The time when caprifig realisate this process is July, and time when profig realisate this process is June. From date 8 June - 15 June, dimension of fruit is: 1. genotype but, length = 2.8 cm and width = 3.2 cm, neck 0.5 cm.The base of flower is white, fulfill with galic flower, fruit color is green to grey, gale are white color. Genotype no 5 is: length =2.4 cm, width = 2.0 cm, gale, full and have point around the fruit. During June month, the blastophaga go out fruit and fly around the tree and profig has full maturity and blastophaga has realisate this phase. In July blastophaga is go ut we can found only blastophaga in the tree. More ore profig have fall in land or are hung in the tree. At this time have more vegetation. This process don't have ended, because have some sycone and mammon has beginning the first fruit with size of bean. During 19 July profig process is close and starts mammon process. At this moment this process is low, must to accommodation blastophaga for winter. The dimension of mammon are 4x 5 cm, neck of fruit 1.5 cm, fruit color is green. In 23.9

we have investigate a blastophag which fly, this is the first blastophaga of this autumn generation, go out from mamme and put on eggs in mamme. In the last month blastophaga go out and fruit falling and male has dead. In 9 November sycone of mammon is mature and beginning dominance phase. The ostiol is closed and blastophaga don't fly outside because low temperature is unfavorable for fly out. In the winter month are in the mamme phase ore mamme generation. The fruit is in the tree but the color is brown to black (Koka, 2010).

N the 25. 4 blastophaga go out.

Our country has a lot of diversity of wild forms of figs wild. Diversity distinguishes in leaves form, type of leaves, distinct for each ecotype. The number of lobes range 3, 5 and 7 lobe. There are several types of leaves. Diversity found in the form of fruit, fruit color, moving from dark green to lighter green, violet, or green veins. There are fruit shapes such as oval, oblate, pyriform, spherical, etc. Neck of fruit is: short, medium, long. Number of galik reach other at 100-1200 and 300-450. The ratio between male and female flowers is 1: 4. Interior color is different for each ecotypes, has lighter green as mentee, is white in the form of cream, green has closed, has in brown until violet. Exterior color and the interior of the fruit moving from phase to phase. especially during growth, up to baking, in the inside takes a brown color violet. The other researcher in our country has come up to find an intermediate stage called protomam (Osmani, 2005), but it has not been part of this study. Profig is the main stage of the cycle that realizes the shrewdness of those cultivars that need to be curated. Other stages play complementary life cycle roles. Blastofaga is an insekt that is in symbiosis with a wild fiery tree and realizes the entire biological phytochemical process.

Table 1: Dynamic of go out of Blastophaga from caprifig (June – July 2010)

Profig	Fruit size Cm (length x width , profig	Blastophaga		Dates		Total
		I	II	III	IV	
Pf1	5.3 x 5.6	45	65	23	-	133
Pf2	4.7 x 5.0	67	126	80	-	273
Pf3	5.4 x 5.0	104	108	11	-	223
Pf4	5.6 x 6.0	130	32	-	-	162
Pf5	4.8 x 5	112	110	6	-	228
Pf6	5.5 x 6.0	3	285	246	-	534
Pf7	4.7 x 5.5	173	124	52	-	349
Pf8	4.2 x 4.7	-	4	64	132	200

Pf9	4.8 x 5.2	-	8	25	161	194
Pf10	5.2 x 5.8	236	232	138	-	606
total		870	1094	645	293	2902
≤		87.0	109.4	64.5	29.3	

The size of fruit don't have link with number of blastophaga because in the setting time to eggs the dimension of fruit is same and don't have problem and don't depend from fruit size The number average of blastophaga for fruit is 290, more low is 133 and more high is 606. The time of go out blastophaga is 3-4 day. The blastophaga continue to go out from ostiol more the first day and few last day. Because go ut for a short day. Process is different for different varieties. The some of caprification moving. Process moving 3-4 per varieties. Correlation between fruit size and numbers of gall flowers (GF) male flower (MF) is 0.9773848. From diagram we can look y is correlation determination and strong than x, $r^2 (Y) = 0.199$ and $r^2 (x) = (0.252)$. Correlation between fruit dimension for profig is $r^2 = 0.982$; for mammon is $r^2 = 0.938$; for mamm is $r^2 = 0.030$, r^2 is coefficient of determination. Correlation in the profig is strong , correlation in mammon is weak and correlation in mamme is strong. In this phase, the entire life cycle is realized

Table 2: morphological indexes

No ecotypes	Dimension leaves/length cm	Width leaves/ cm	Type leaves	Forms leaves
FWTR1	23	24	7	A
FWTR2	21	25	5	B
FWTR3	17	17	3	G
FWTR4	17	16	Un divide	H
FWSHG1	20	22	7	A
FWLSHG2	19	20	5	C
FWLZH	16.5	17	3	G
FWMA	10	10	5	B
FWVL	22	21	5	A

Fig no 1: Correlation of dimension fruit in the three phase of life cycle of wild fig

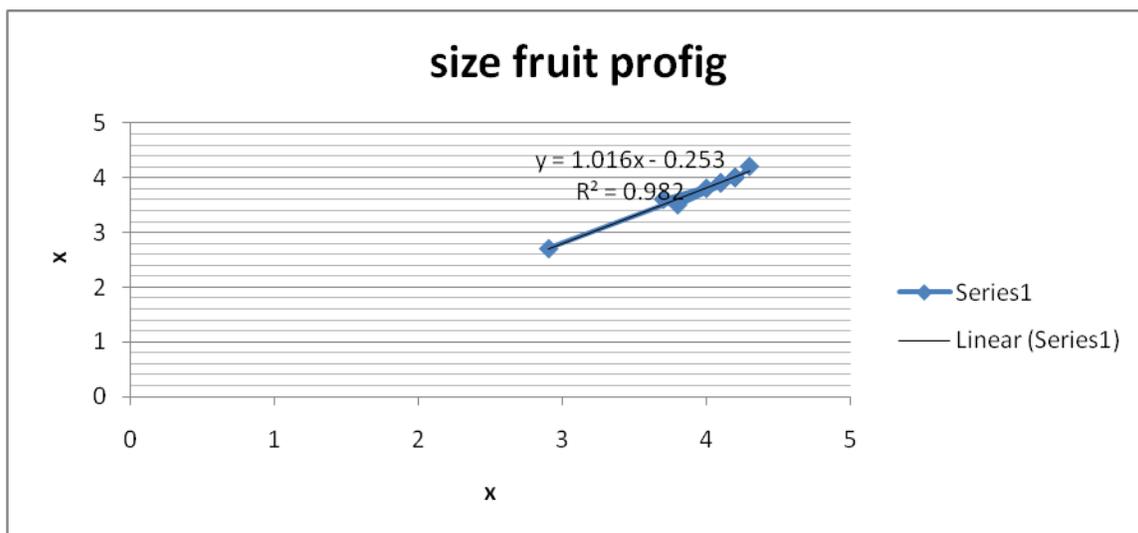
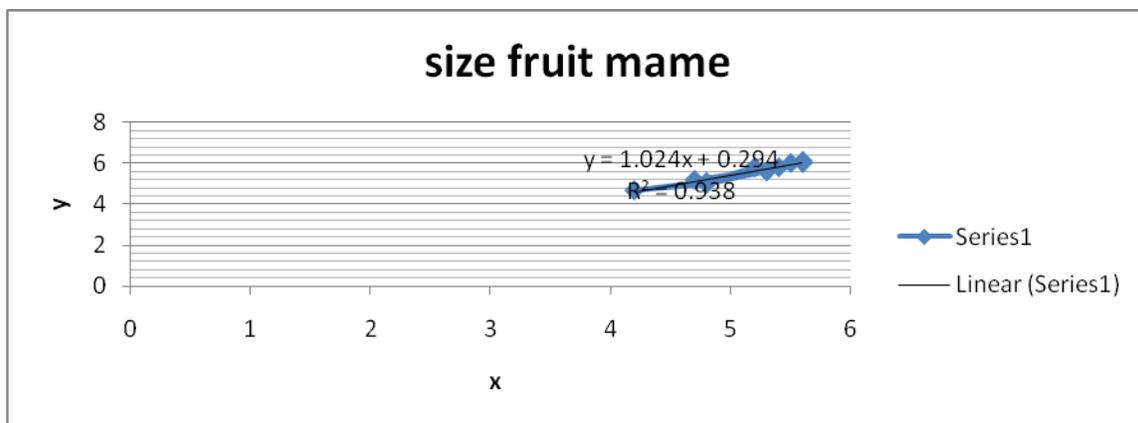
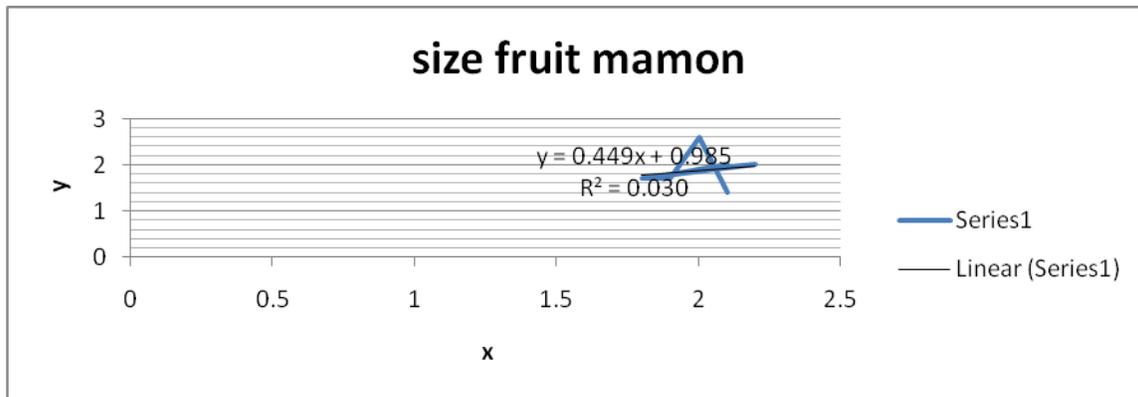


Fig no 2: Correlation between male flower and female flower

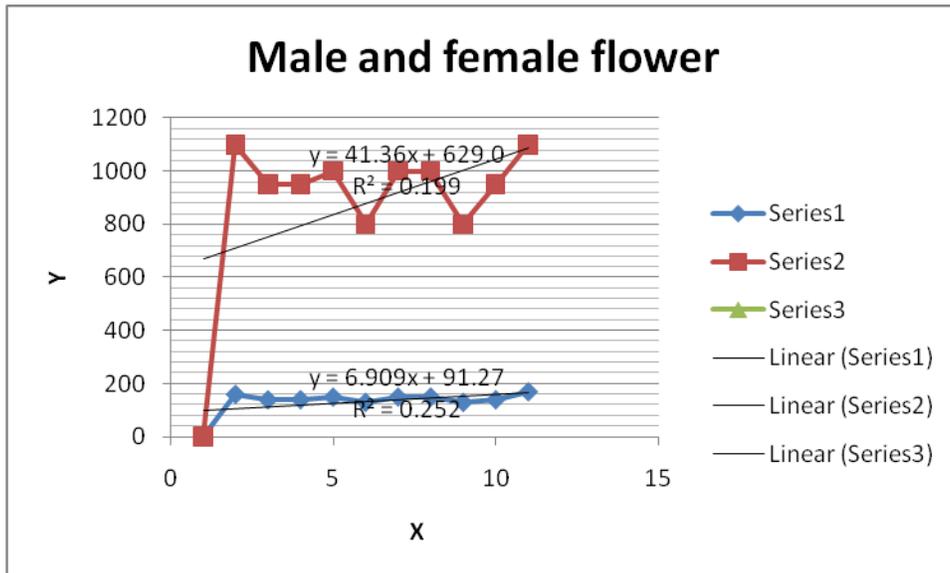


Fig no 3: The traits of wild fig (Tree profig, leaves profi, fruit profig)



The key of profig is caprification of cultivate fig and in this study we can determination those cultivars which have need to caprification. Perdhicul, Kallamata, Bajun which ripen in august. The cultivars of Shengjina, Bradashesh, Kraps are two crops and the first mature don't have need but in second caprification have need to caprification.

Fig no 4: Cultivars which have need for caprification



The Perdhicul, Kallamata and Bajun are the best figs in the taste. The Perdhicul and Kallamate are figs which growing in south of country, and Bajun growing in west north of our country. Shengjinias, Bradashesh and Krapsh growing in middle of our country, mainly Tirana, Elbasan, Durres, Kruje.

4. CONCLUSION

In Albania country has a lot of wild fig, which stripe at all regions when growing figs cultivate. Has a lot of wild fig in every zone. The destination is for caprification, and destination for industry (Liko).

REFERENCE

1. Ali Koyuncu, M, 1998. A study on some fruit characteristics in local fig cultivars grown in Hilvan (South Turkey), *Acta Hort*: 480: 83-85.
2. Aljan F, and Ferchurc A, (2010). Asssment of genetic diversity of Tunisian fig (*Ficus carica* L) cultivars using morphological and chemical characters. *Acta Bot Gallica* 157 (I),171-182.
3. Condit, j.j1955. Fig varieties : a monography *Hilgardia* 23:11.
4. Caliskan, O and Polat A.A (2012). Morphological diversity among fig (*Ficus carica* L) accession sampled from the Eastern Mediterranean region of Turkey, *Turk.J.Agric* 36(2), 179-193
5. Cristo CH, Bremers V, Ferguson I, Crisoto GM (2010) Evaluating quality attributes of four fresh fig (*Ficus carica* L) cultivar harvest at two, maturity stages. *Horticulture* 45: 707-710
6. Ferrara, E, and Papa G (2001). Germoplasma fico caratterizzazione morfologica di 30 cultivar per la produzione di fiorini. Paper presented at: VI Convegno Nazionale Biodiversita(Bari, Italy, Convegno Nazionale Biodiversita).
7. Grassi G,1998. Aspetti produttivi della fichicoltura italiana *Fruticoltura* 10.

8. Ismaili, H. Analysis of some very old olive tree, 2018, International Journal of current Microbiology and Applied Science. 7 (1) 2305-2312.
9. Johansen, D.A, 1940. Plant microtechnic Me GRAW – Hill Book Comp, New York.
10. Kjellberg, F, Gouyon, P.H, Ibrahim, M.Raymond, M and Valdeyron, G.1987. The stability of the symbiosis between dioecious figs and their pollinators: a study of *Ficus carica* L, Germplasm in Southern in Tunisia, Acta Hort , 480: 75-81.
11. Mars. M, Chebli, T, and Marakchi, M,1997. Multivariate analysis of fig (*Ficus carica* L) germplasm in south Tunisia, Acta Hort, 480: 75-81.
- 12.O Caliscan, S Bayazit, M Ilgin, N Karatas and K Kocatas, 2017. Preliminary results on morpho – pomological traits and pollinizer characterization of some caprifig genotypes grown in Eastern Mediterranean of Turkey, Acta Hort, 1173 : 45-50.
13. Oukabli, A, Mamouni, A, Laghezali, M Ater, M, Roger, JP and Khadari , B.2003. Locali caprifig tree characterization and their interest for pollination. Acta Hort.605:95-96.
14. Pontikis, C.A and Melas P, 1986 Micropropagation of *Ficus Carica* L Hortscience 21; 153
Riquelme. A, 1994, Contribucion al studio de los estados fenologicos de la higuera (*Ficus Carica* L).
15. Prativiera, A and Godoy Aliverti, A.R,1985. El cultivo de la higuera, INTA.
16. Slatnar A, Klancar U, Stampa F, Vebric R (2011) Effect of drying of fig (*Ficus carica* L) on the content of sugar, organic acid and phenol compounds, J Agr Food Chem 59 – 11696 - 11702
17. Stover E, Aradhya M, Ferguson L AND Crisosto C.H (2007). The fig overview of an ancient fruits. Hortscience 42, 1083-1087.
18. R Osmani, 2005. Cilkli biologjik I fikut, revista bujqesia Shqiptare
19. T,J, Michildes, D.P Morgan, D Feltes and M.A. Doster, 2008, Control of Decay in caprifig and Calimyrna Figs with Fungicides, Acta hort 798.
- 20.T Koka, 2010, Fig germplasm in Albania, monography