MORPHO-GENETIC VARIATION OF WILD SEA BUCKTHORN POPULATION'S IN MONGOLIA (*HIPPOPHAE RHAMNOIDES* L. SSP. *MONGOLICA* ROUSI)

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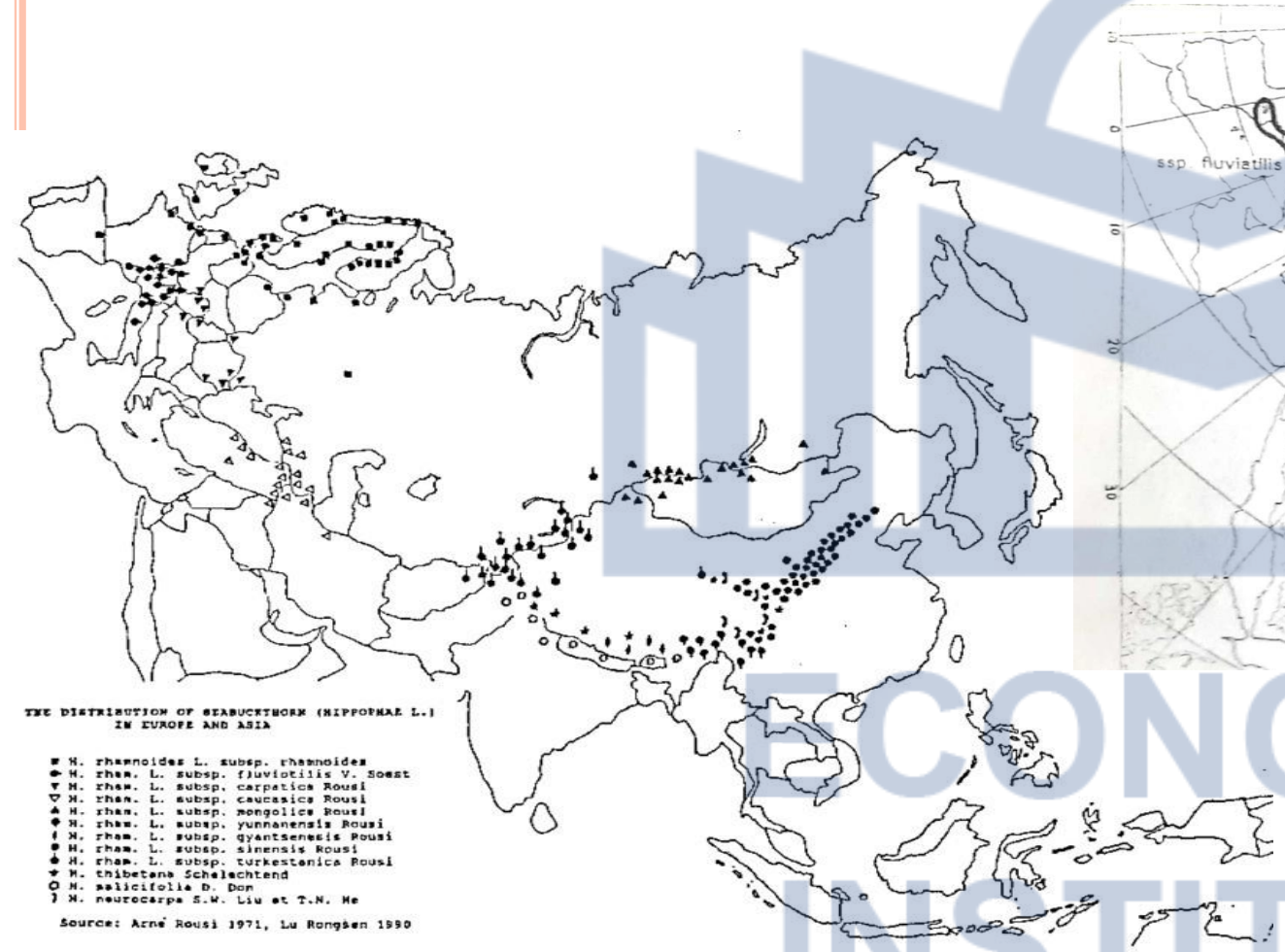
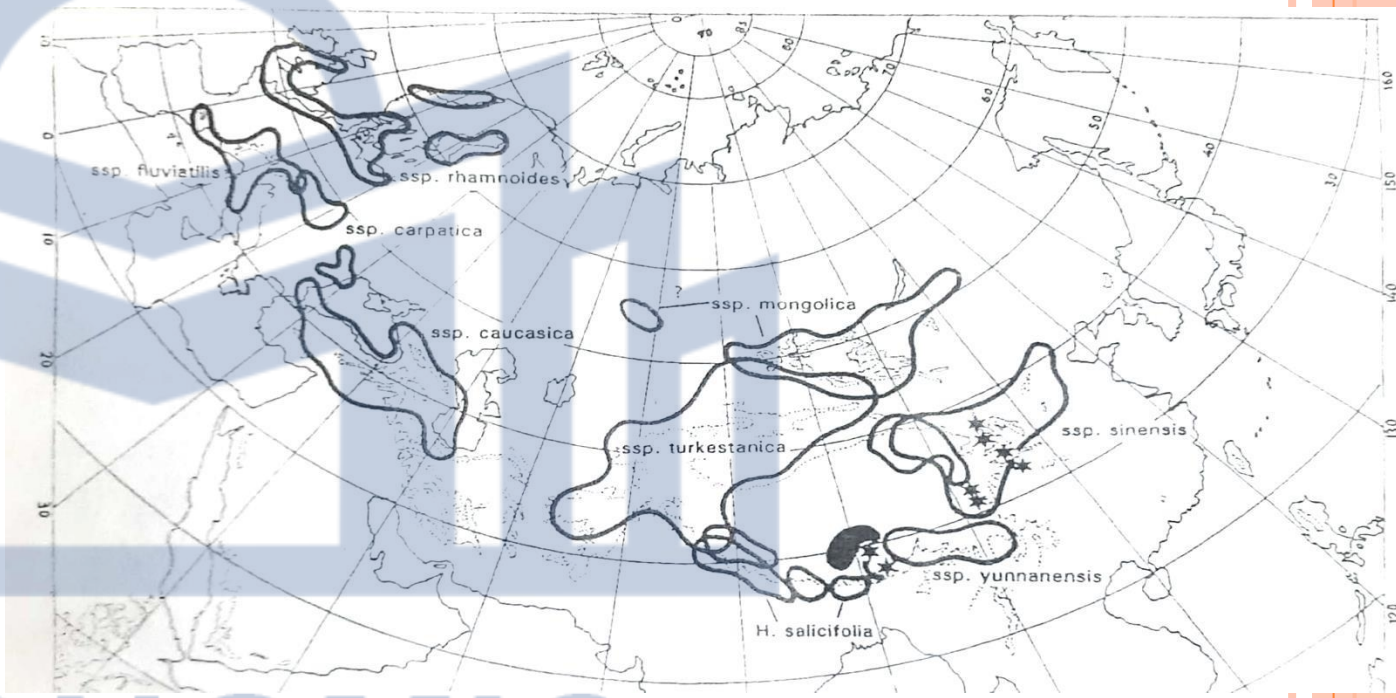
THE DISTRIBUTION MAP OF 7 SPECIES AND 12 SUBSPECIES OF SEA BUCKTHORN IN EUROPE AND ASIA





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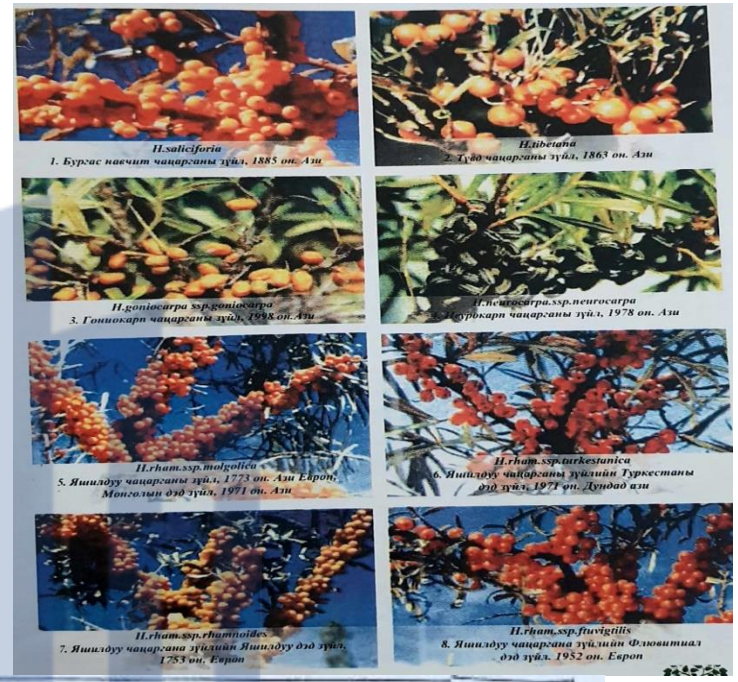
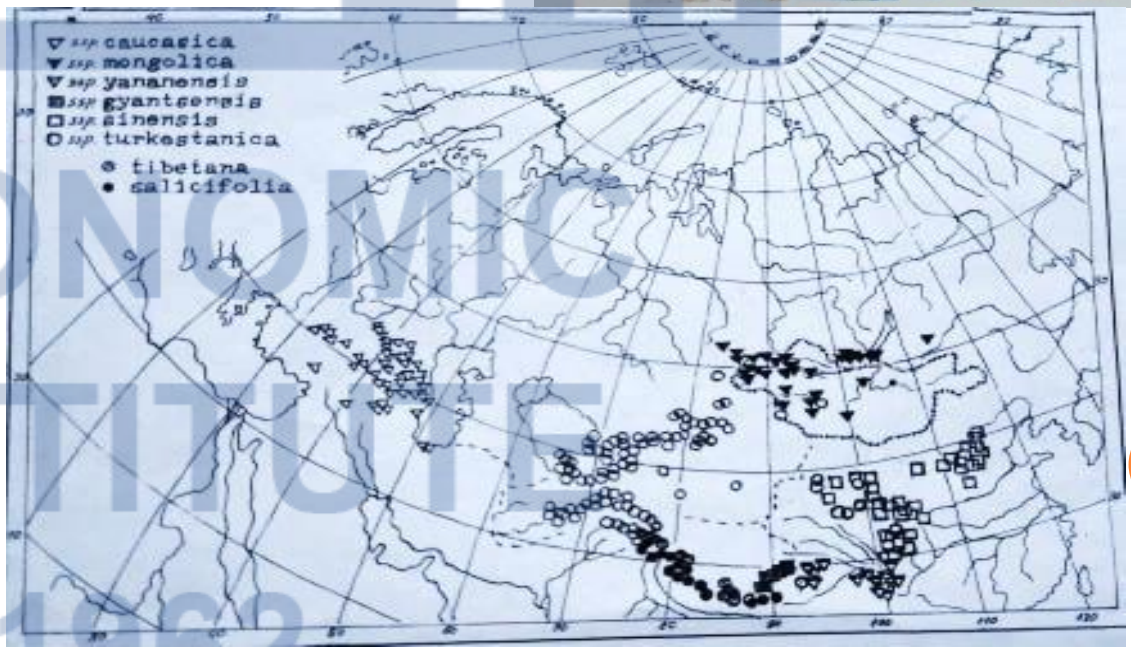
THE NAME OF SEA BUCKTHORN SPECIES AND SUBSPECIES OF H.RHAMNOIDES

***H.salicifalia* D.Don**
H.tibetana Schlect 1863
H.goniocarpa Chen et K.sun 1998
H.neuracarpa Liu et. T.V.He, 1978
H.litangensis LianetX.L.Chen 1998
H.gyantsensis /Rousi/ Lian, 1971
H.rhamnoides L
ssp. *yunnanensis* Rousi**,** 1971
ssp. *turkestanica* Rous 1971
ssp. *mongolica* Rousi 1971
ssp. *caucasica* Rousi 1971
ssp.*sinensis* Rousi 1971
ssp.*carpatica* Rousi 1971
ssp.*rhamnoides* Sueden
ssp. *flviatilis* Van soest. 1952





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METHODS AND MATERIALS

- Variability of characters and their frequency of phenotypically class intervals and their geographic distribution with pheno-geographic spatial expansion are based on the latest statistics and phenotypic analysis (Lakin, 1990).

- The broad sense heritability in comparison, between populations where e^2 - ecological factor and H^2 the share of genetically determination has been defined by Rone (1978). This method based on the comparing the variation population of SB (P) and its clone (cl) limits and intervals (В.М.Роне and others 1974). If S^2_{ph}= 1 then H^2+ e^2=1 and here H^2-genetic factor, e^2-ecological factor and H^2 ranged from 0 to 1.

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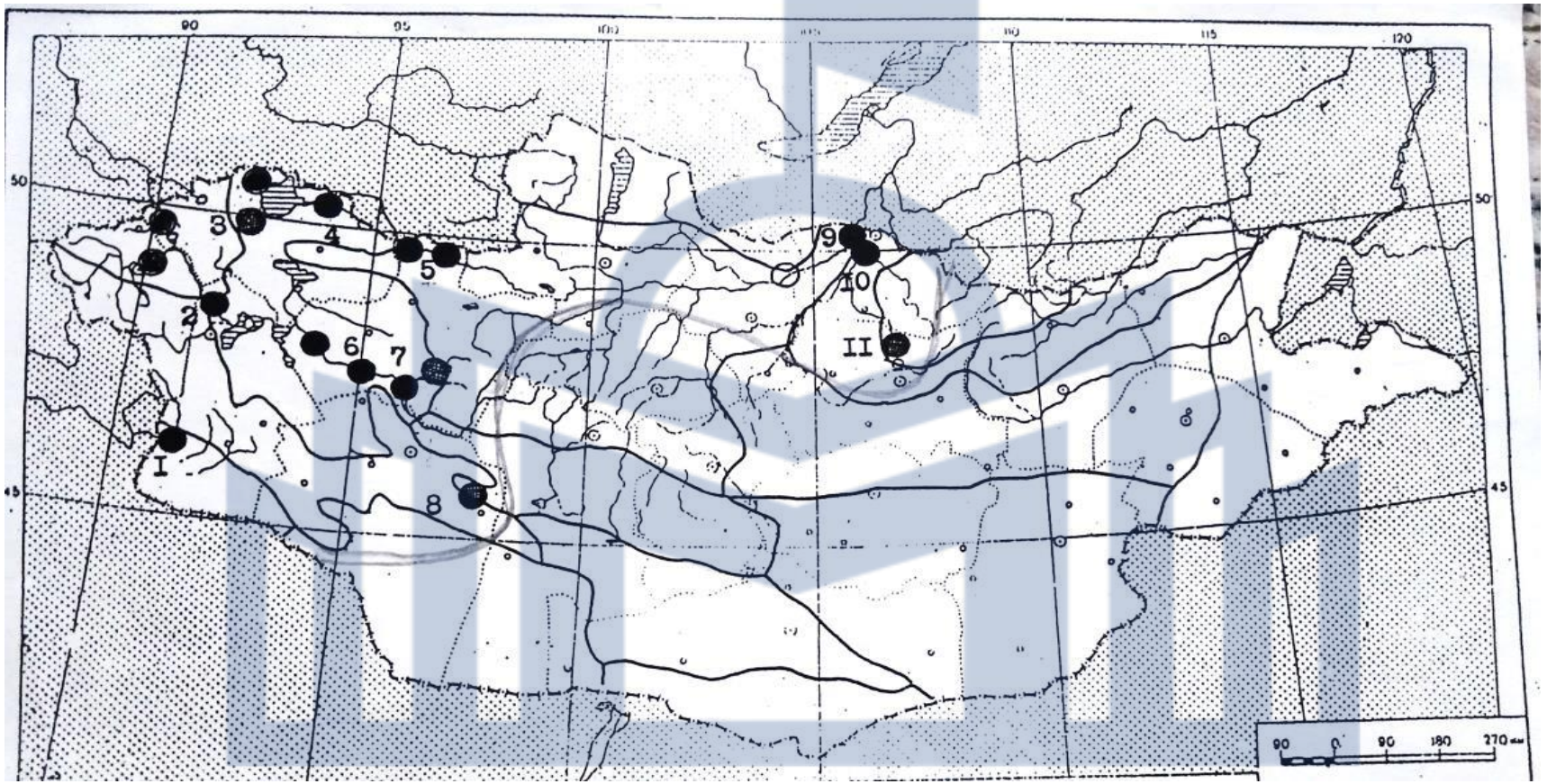
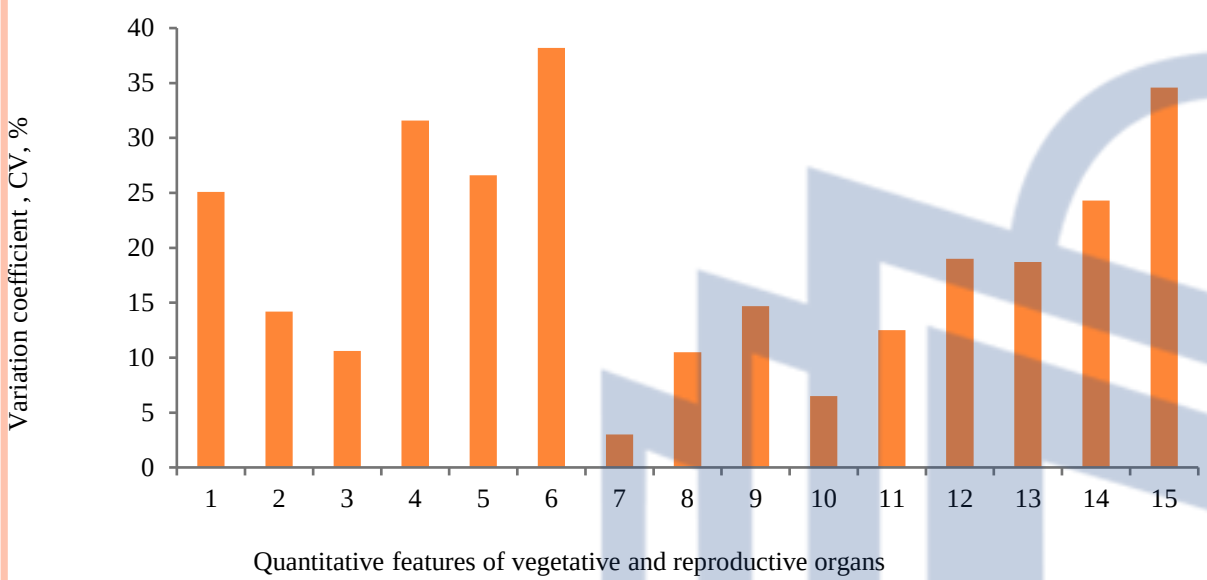
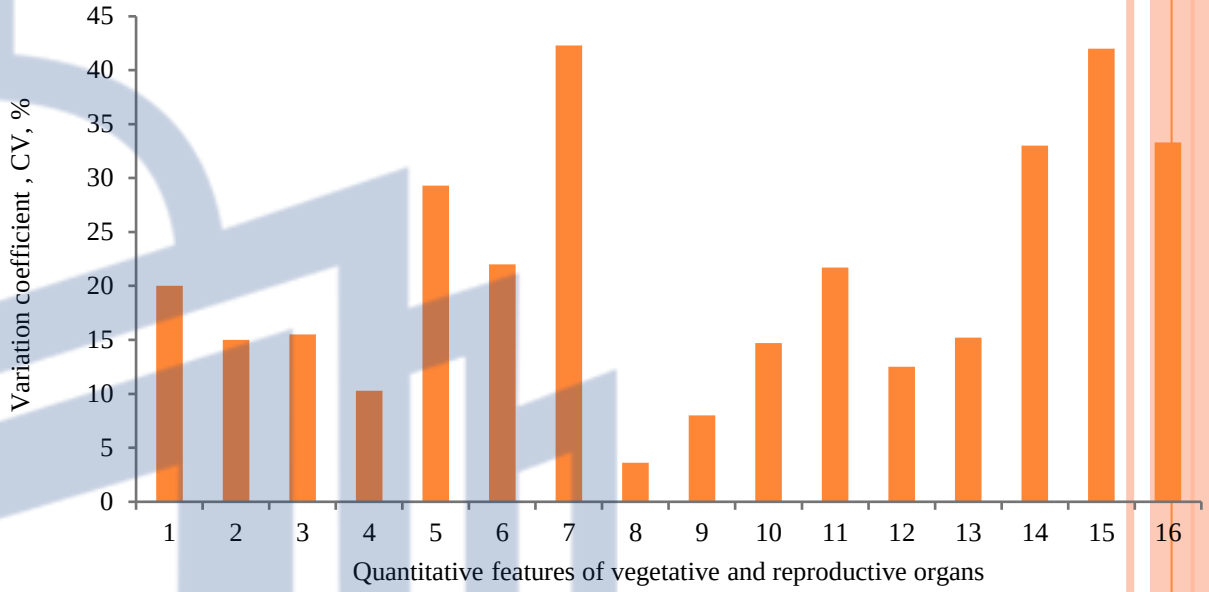


According to the zones the Mongolian vegetation divided on 16 botanic geographical regions (Grubov, 1982). In this connection, occurrence of the spp. *mongolica* populations within its Mongolian distribution territory located mostly in Western part Mongolia along the valley of rivers follows: Bulgan, Khovd, Bukhmurun, Zavkhan, Te s(Uvs prov), Borkh, Tes (Zavkhan prov), and Selenge and others

We conducted studies of the morphological features in different natural zones, where desert, semi desert botanic-geographical region Mongolia ((Dzungaria Gobi and Great Lakes depression, Bulgan, Zavhan, Khovd, Tes river) and forest steppe (Selenga, Orkhon and Sognogor Bayangol rivers)

RESULTS AND DISCUSSION





The variation level of different characters of sea buckthorn ssp. mongolica. (Desert, semi desert region: Bulgan, Khovd, Zavkhan, Bogd-Borkh, Tes rivers and population near Biger and Forest steppe region: Selenge river, Bogd-Chigestei and Sugnugur-Bayangol population). Fruit: 1- weight, g 2- length, mm 3-diametr, mm 4- pedicel length 5- breaking force from branch, H 6- yield, kg/h; Seed: 7- weight,g 8-length,mm 9-wigth, mm 10- thick, mm; Leaf: 11-length,mm 12-wigth, mm; Branch: 13- length of two years branch 14-number of two years branch 15-friuts number

As a result, greatest variation of characters is fruit weight, branch's length, fruits numbers and number of branch. From above figure the variation coefficient of the characters generative organs are stable and less variability, so it is important for selection work and cultivation of sea buckthorn

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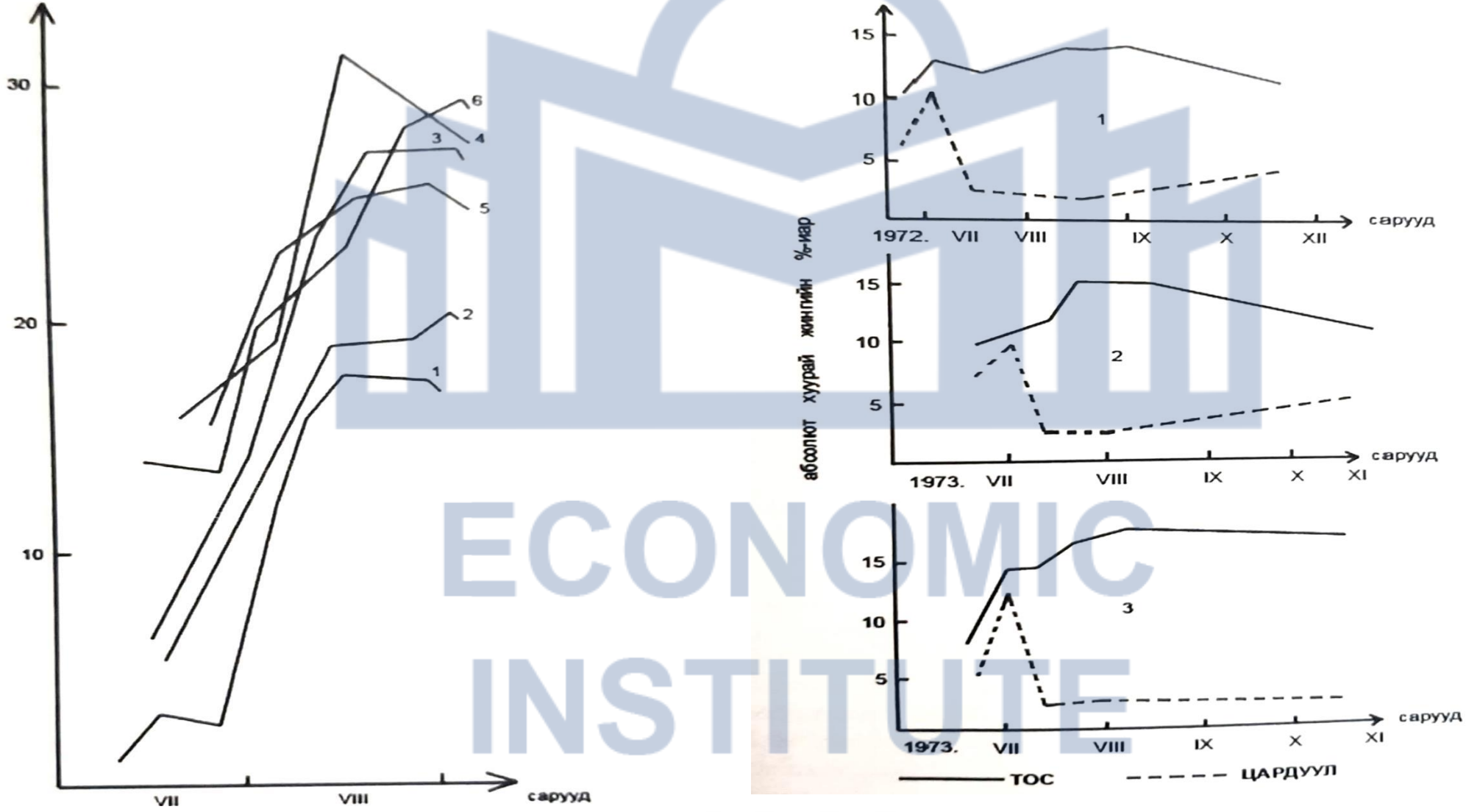
THE DYNAMIC CHANGES IN OIL ACCUMULATION



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CORRELATION COEFFICIENT BETWEEN OF FRUIT HARVEST AND MORPHOLOGICAL CHARACTERS

№	Characters	Coppelation	Correlation strength
1	Weight of friut	0.05	Negligible
2	length	-0.14	Weak
3	diameter	-0.17	Weak
4	Number of fruit	0.30	Moderate
5	Number of fruit on 1 bush	0.67	Strong
6	Number of fruit on 1 bud	0.14	Weak
7	Number of 2 years branch	0.28	Moderate
8	Length of branch with fruit	0.68	Strong
9	Length of leaf	-0.8	Strong
10	Width of leaf	0.05	Negligible
11	Years	0.05	Negligible
12	Height of bush	-0.22	Moderate

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CORRELATION COEFFICIENT BETWEEN OF FRUIT OILS AND MORPHOLOGICAL CHARACTERS

№	Characters	Coppelation	Correlation strength
1	Weight of fruit	- 0.307	Moderate
2	Length of fruit	- 0.201	Negligible
3	Diameter of fruit	- 0.190	Weak
4	Number of fruit on 1 bush	+ 0.274	Negligible
5	Number of fruits on 2 years branch	- 0.043	Weak
6	breaking force from branch	- 0.310	Moderate
7	Length of seeds	+ 0.366	Strong
8	Seed present in fruit	- 0.377	Strong
9	Length of 2 years branch	+ 0.400	Strong
10	Number of 2 years branch in 1 bush	- 0.222	Negligible
11	Width of leaf	- 0.257	Negligible

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GENETIC VARIATION OF SOME CHARACTERS OF WILD SEA BUCKTHORN

Region	Dzungaria Gobi and Great Lakes depression, desert and semi desert						Khangai, forest steppe			Average
Populations	Bulgan river (Khovd prov.Bulgan soum)	Khovd river (Khovd prov. Erdeneburen soum)	Zavkhan river (Zavkhan prov. Aldarkhhan, Durvuljin soum)	Tes river (Uvs prov.Tes soum)	Biger lake, (Gobi-Altai prov. Biger soum)	Plantation (Uvs prov. Ulaangom soum)	Bogd river. (Zavkhan prov. Uliastai soum)	Selenge river (Selenge prov. Zuunburen soum)	Bayangol, (Tuv prov. Batsumber soum)	
(H^2)	0.58	0.62	0.72	0.56	0.65	0.41	0.43	0.38	0.32	0.51
(e^2)	0.42	0.38	0.28	0.44	0.35	0.59	0.57	0.52	0.68	0,.49
Comparative result	(H^2) – 0.59 (e^2) – 0.41						(H^2) – 0.38 (e^2) – 0.62			

We evaluated the H^2-specific value of the fruit oilness. It can be seen from above results that the heritability coefficient H^2 in the population of Bulgan, Khovd, Zavkhan river Biger and Tes river, which are part of Central Asian deserts and steppes, is higher than other populations. A very interesting result is in the desert and semi desert region, especially in the Zavkhan river of the Great Lakes Depression, the genetic factor of oiliness accumulation is higher than the forest-steppe region

CONCLUSION

- Some characters of *H. rhamnoides* L ssp *turkestanica* Rousi are following: epidermis of branches silvery, with more and usually branched thorns, leaves narrower, both surfaces commonly silvery: carpopodium 3-4 mm long. Rousi noted that ssp t*urkestanica* occurred in the Dzungaria Gobi region; however this subspecies has not been identified
- From study, the variation coefficient of the characters generative organs such as fruit weight, length and diameter also seed weight, length and length leaf and as well as seed thickness are stable and low variability, so it is important for selection work and cultivation of sea buckthorn.
- The ratio of ecological (e^2) and genetic (H^2) factors for fruit oil contents of all region were showed an average each 0.49 and 0.51. It seems that almost the same in all regions. However, both factors are different in natural zones of Mongolia. This is a fact that should be taken into attention in the cultivation of agro-technic and maintenance of local forms.

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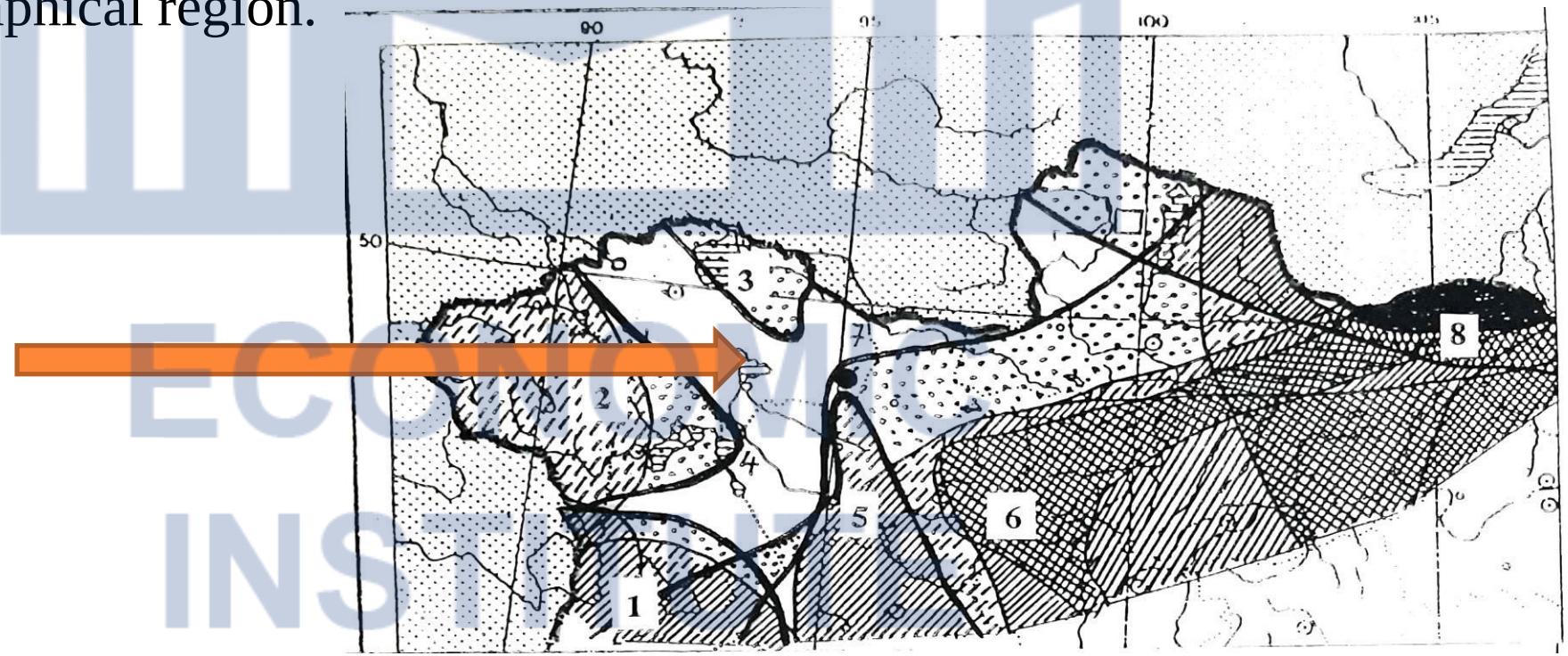
- We were offer a new conception that Great Lakes Depression of semi desert botanical geographical region is historical origin center of subsp *mongolica* Rousi and also a range center (48° 36' 18"/95°34' 13") Mongolian wild sea buckthorn population.
- Heredity coefficient (H^2)and average intervals of normal distribution of many pheno (gene) were more concentrated in Great Lakes Depression than other botanical geographical region.



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- Thank you for your attention

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