

**SEABUCKTHORN LEAVES -
FROM PLANTATION TO COMMERCIAL APPLICATION
10 YEARS RESEARCH AND DEVELOPMENT IN GERMANY**



Axel Waehling

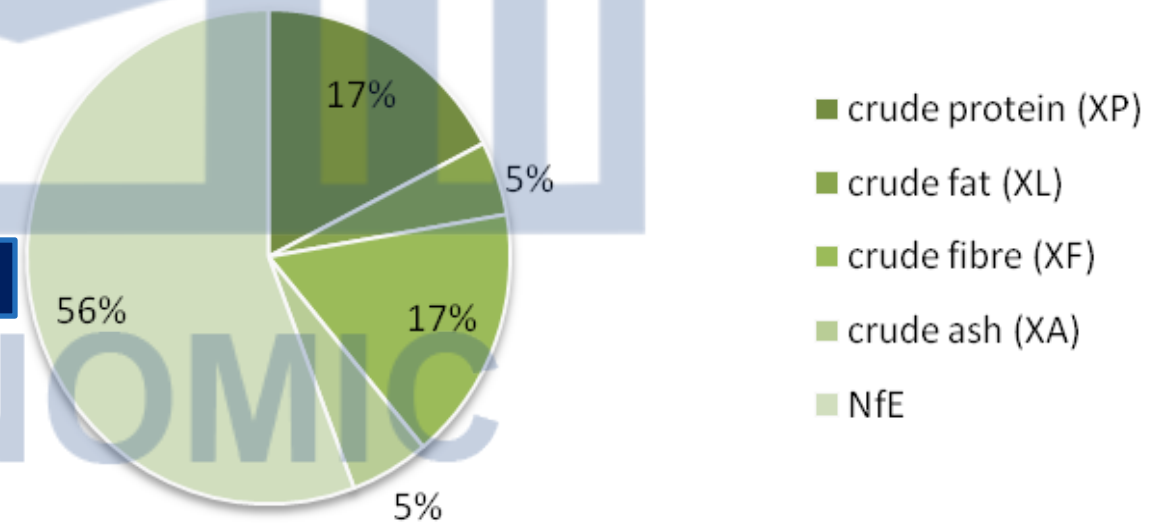
AsiaBerry - 2024

Ulaanbaatar 30.10. - 01.11.2024

SEABUCKTHORN LEAVES – CONSTITUENTS



Nutritional information in chinese
SBT-leaves in %



**Secondary substances
like ellagitannins,
catechins, flavonoids,
carotinoids...**

BERRIES HARVESTING PROCEDURE IN GERMANY



app. 25%



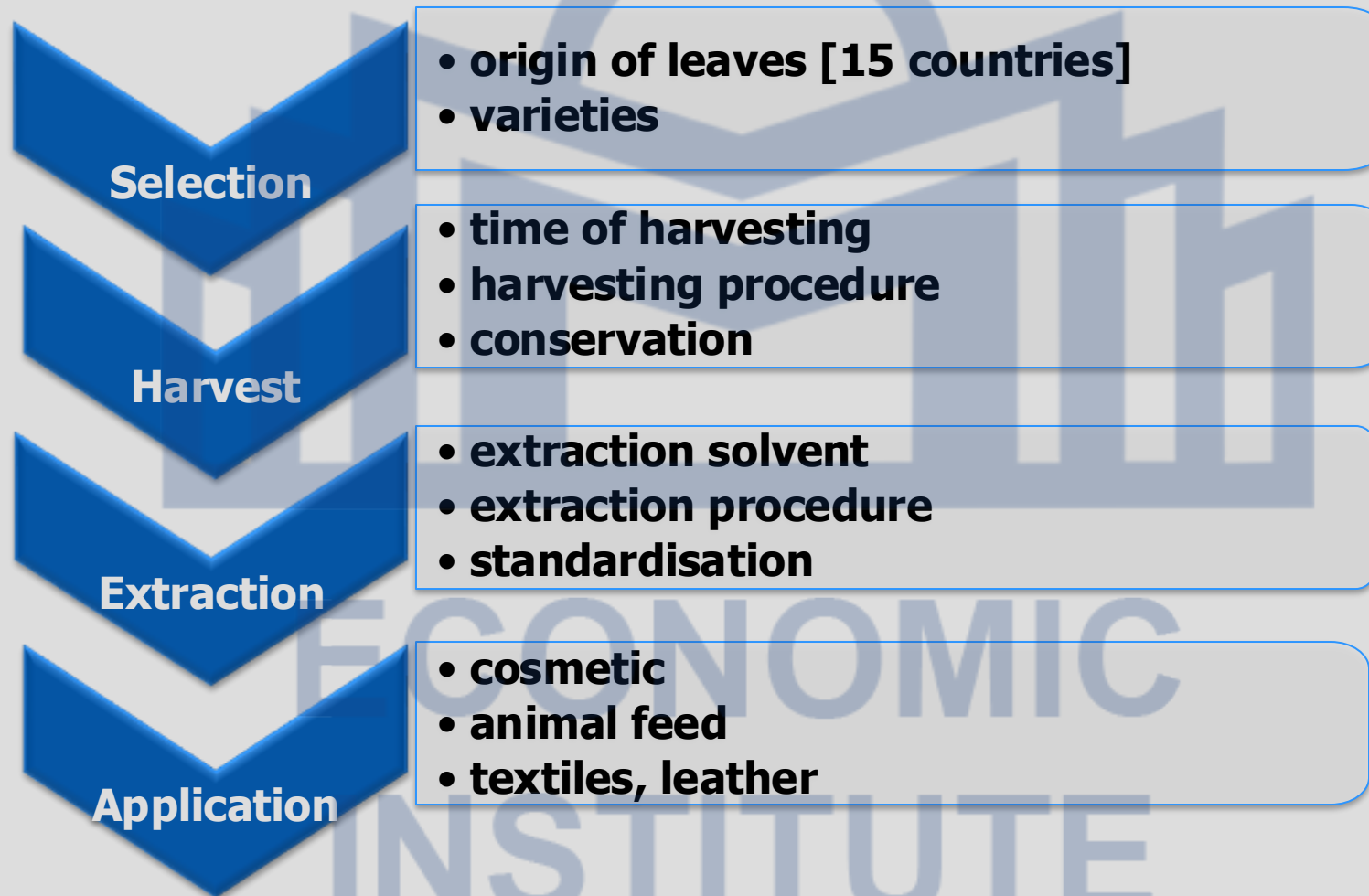
app. 25%



app. 50%



SEABUCKTHORN LEAVE RESEARCH – SUB-PROJECTS



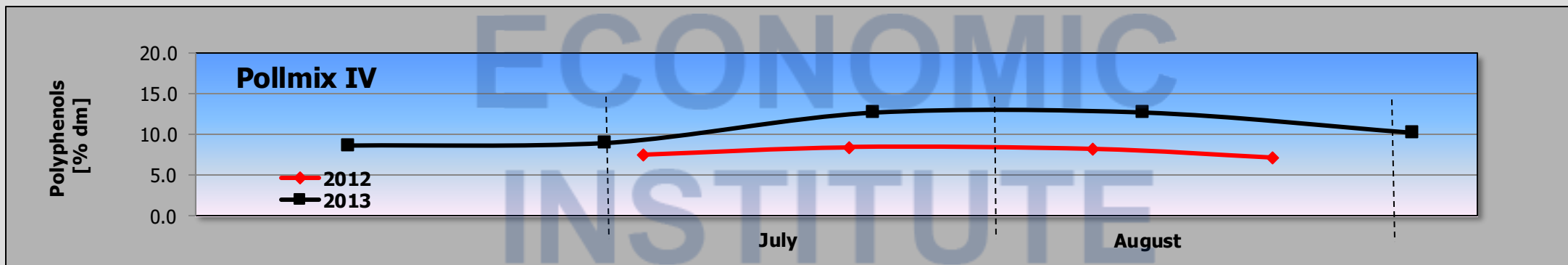
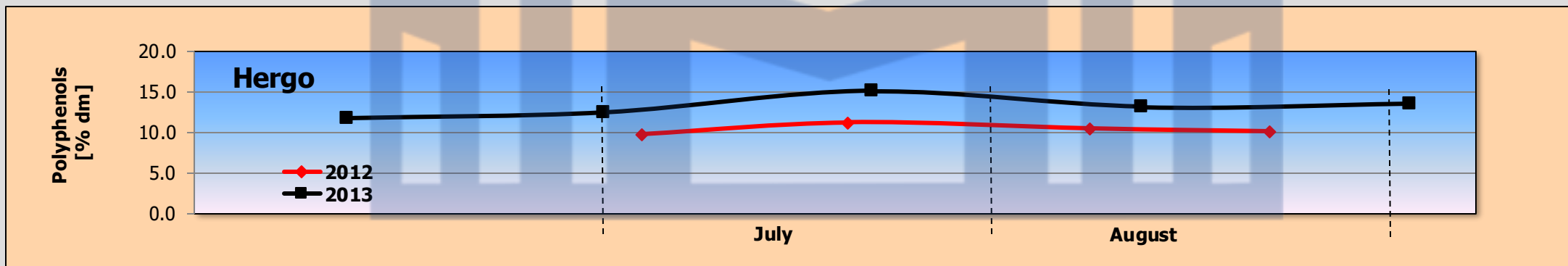
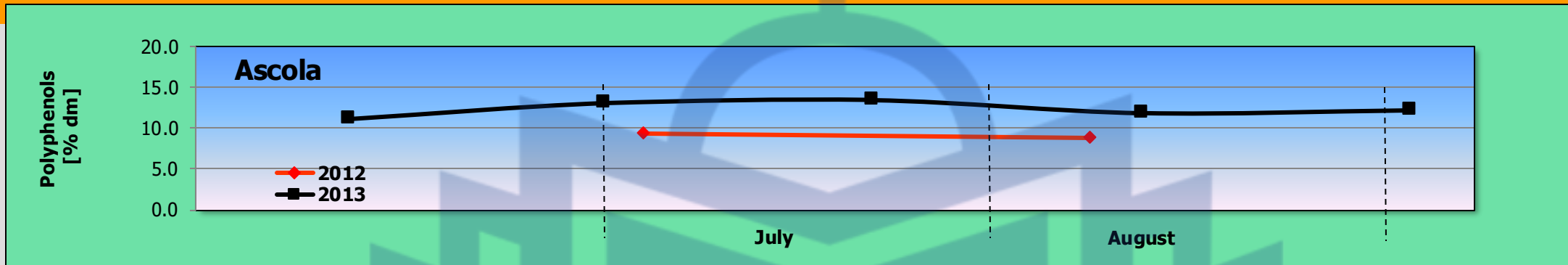
POLYPHENOLS IN SEABUCKTHORN LEAVES

DIFFERENT ORIGINS

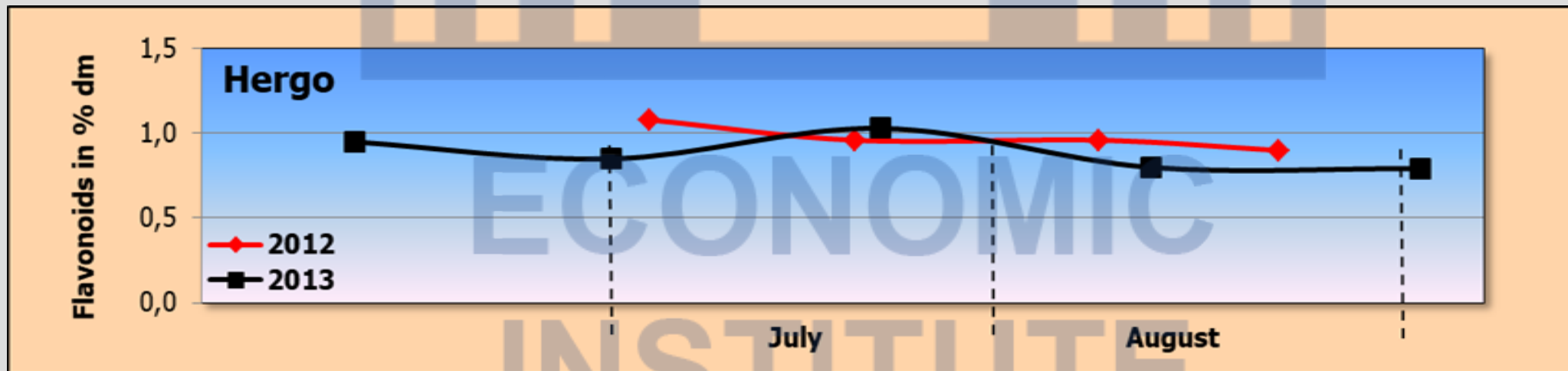
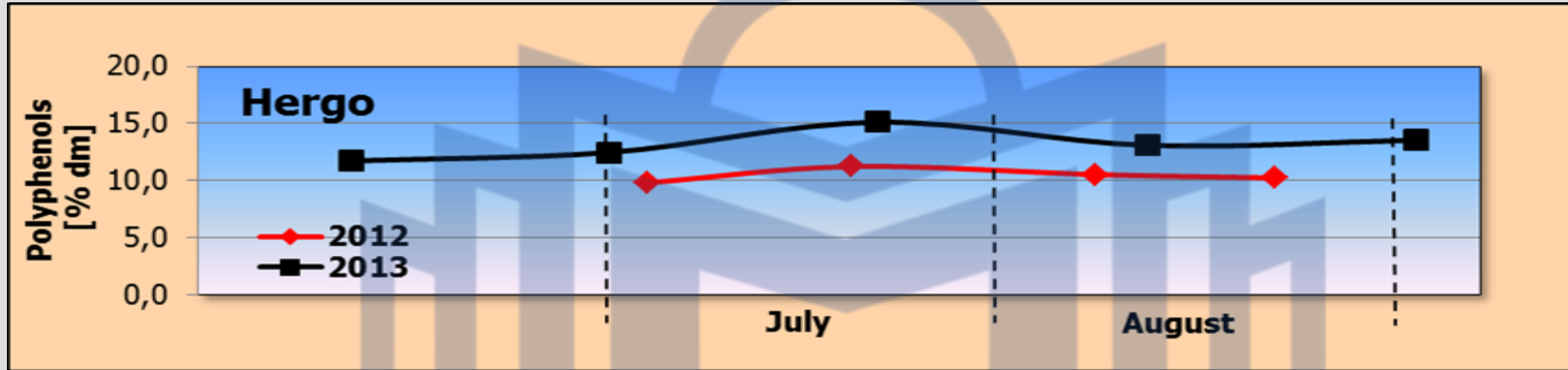


	Average PP content in DM	Max PP content in DM	Species/ Subspecies	Variety
Germany	9,6 %	14 %	Ssp. rhamnoides	Hergo
Russia	14,1 %	16,3 %	Ssp. mongolica	Gnom
China	12,1 %	20,6 %	Ssp.sinensis	Wild collection, 2900 m
Latvia	15,6 %	20,3 %	Crossing	Tatiana
Romania	8,2 %	12,1 %	Ssp. carpatica	Wild collection
Mongolia	10,6 %	13,2 %	Ssp.mongolica	Maslichnaya

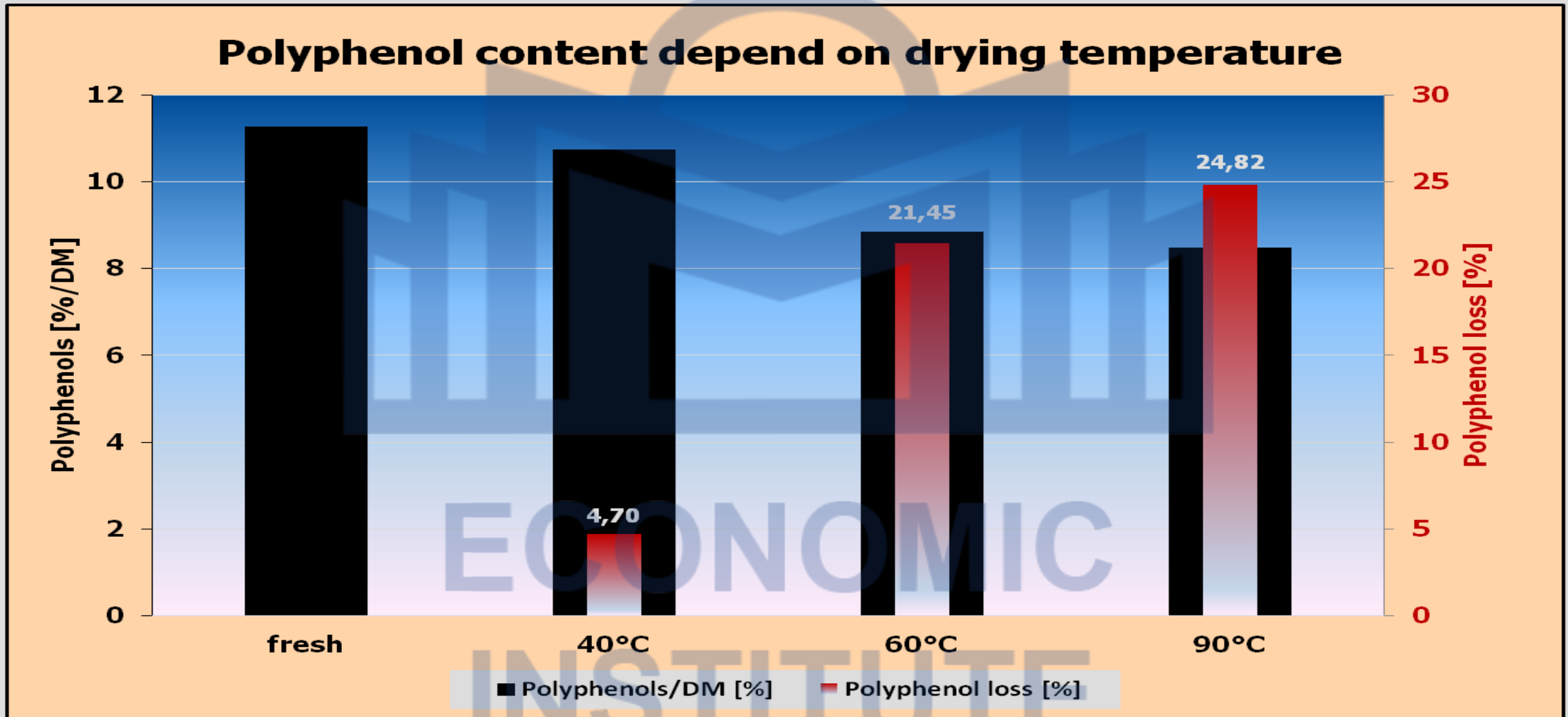
POLYPHENOLS VS. HARVESTING TIME IN GERMAN LEAVES



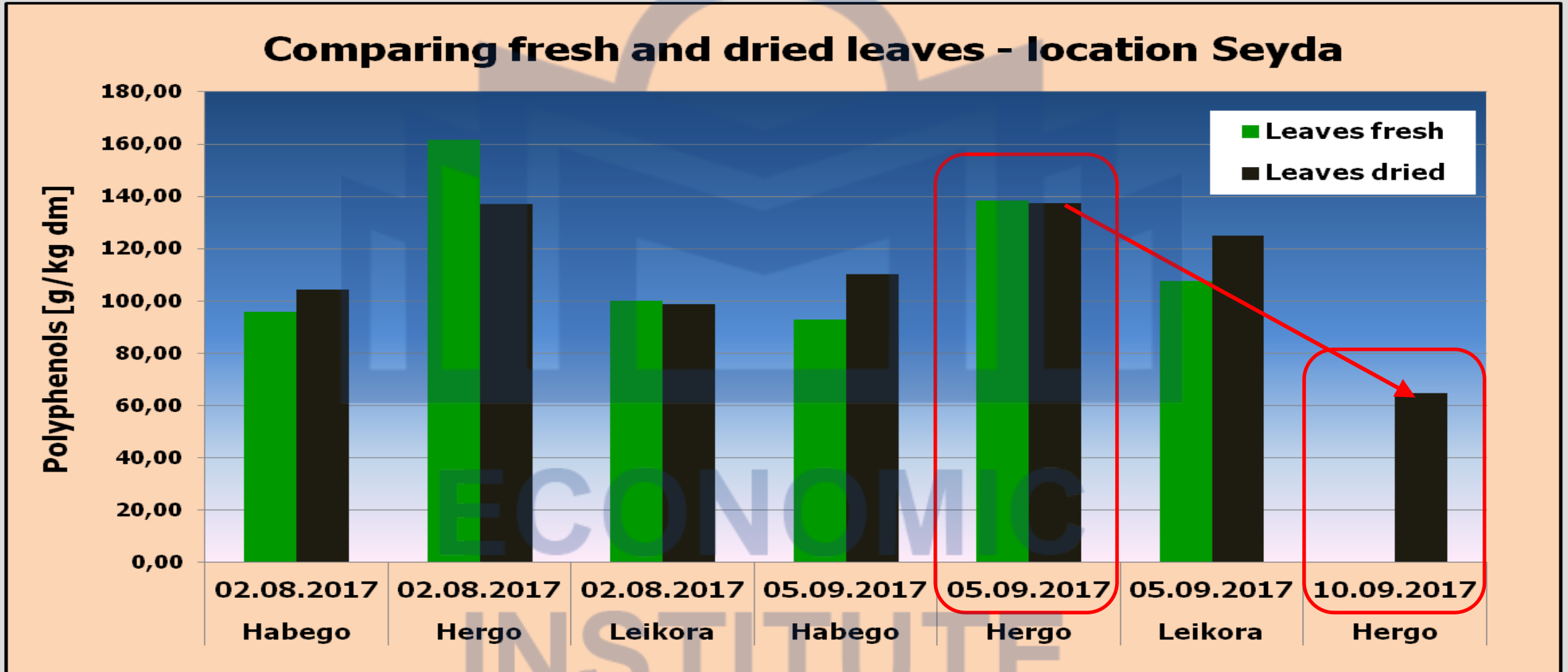
POLYPHENOLS VS. FLAVONOIDS IN GERMAN LEAVES



CONSERVATION METHOD - DRYING



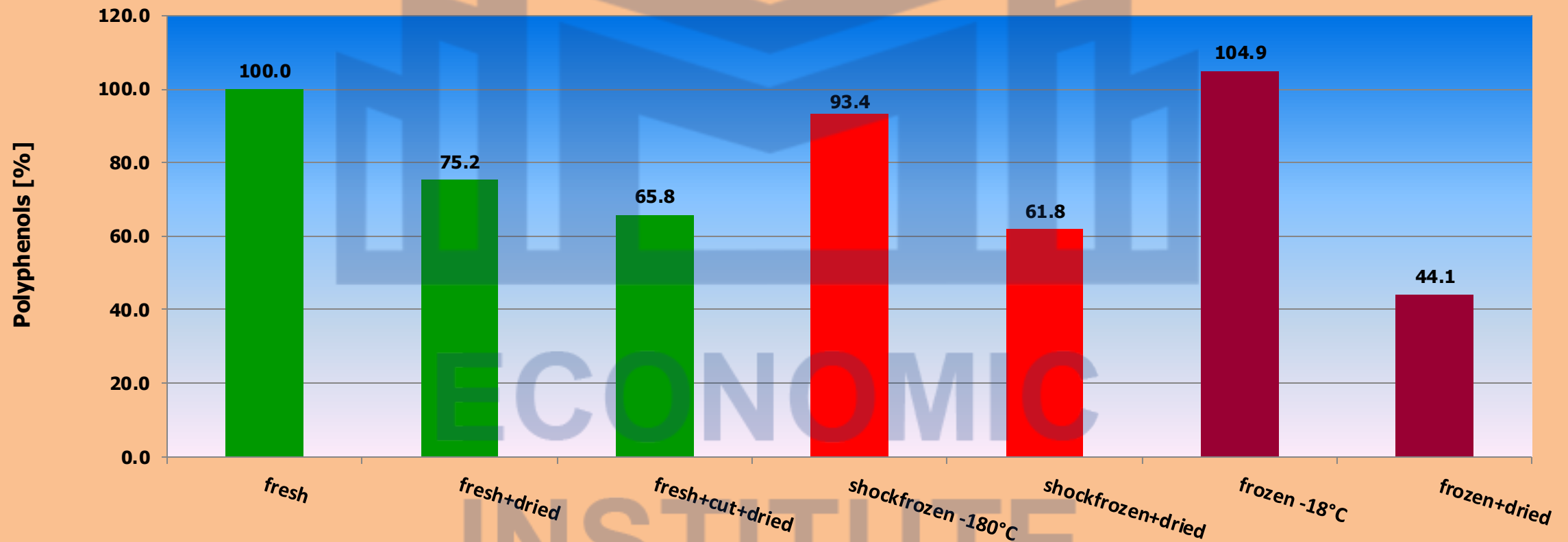
INFLUENCE OF POSTHARVESTING - GERMANY



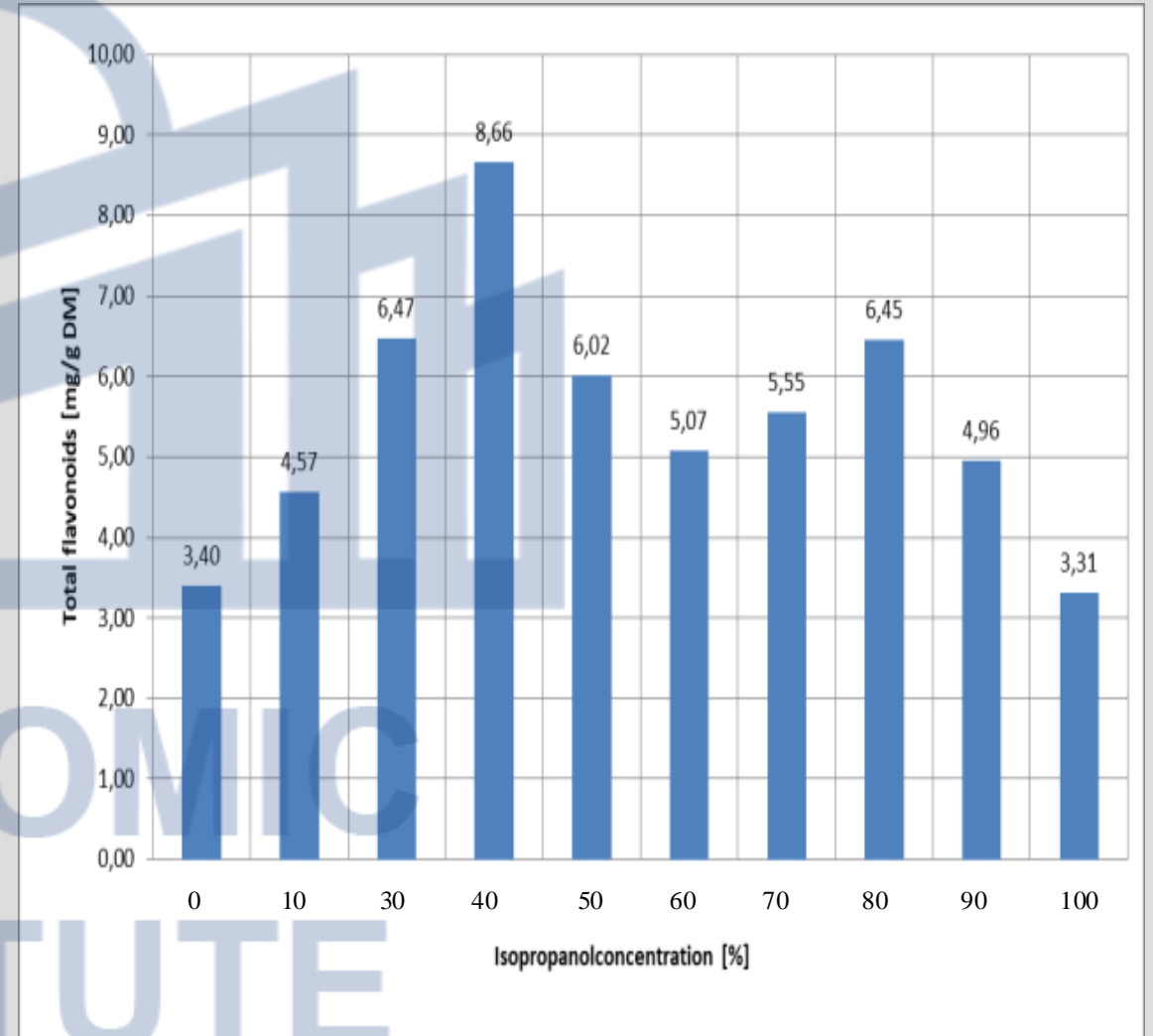
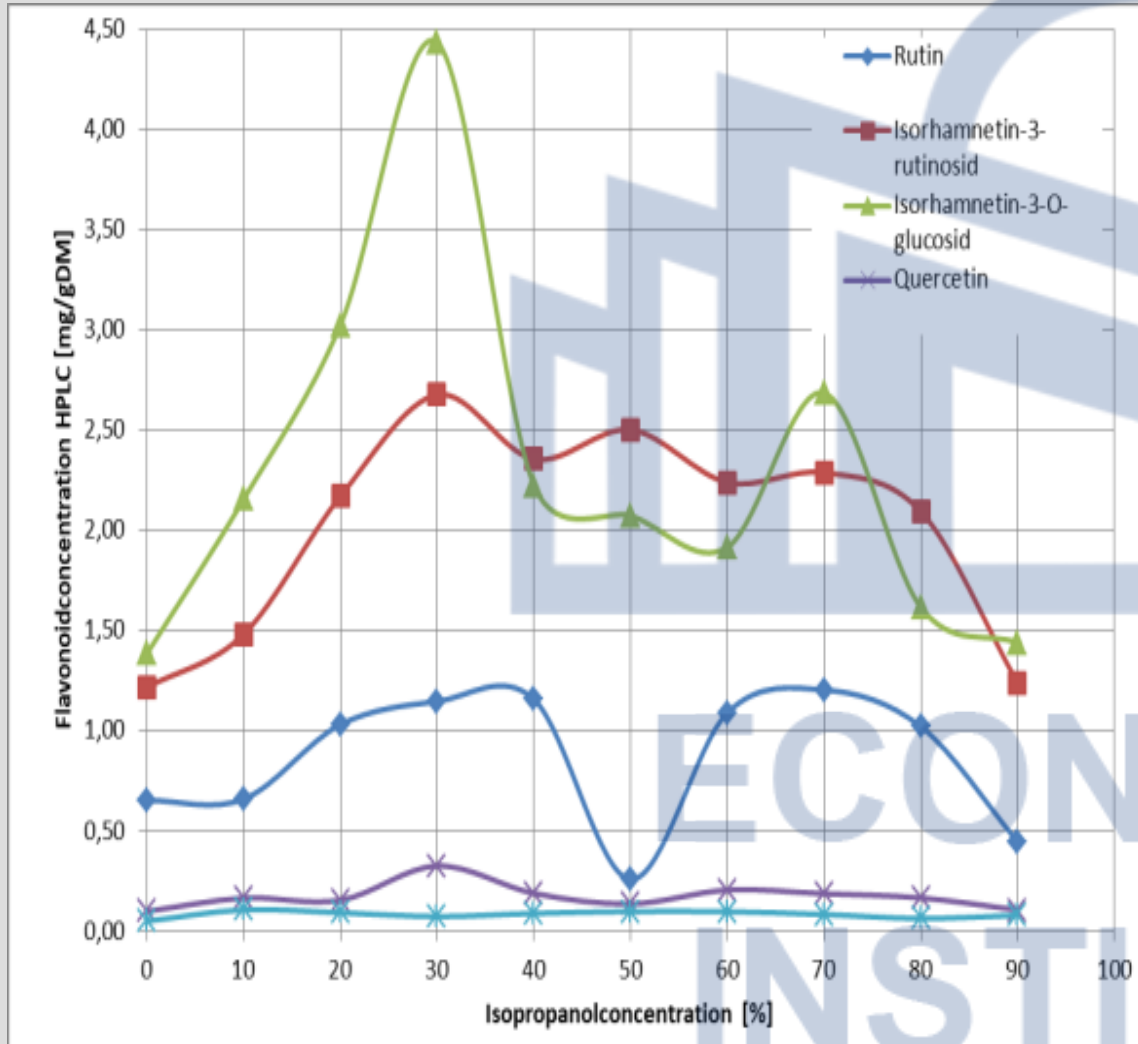
CONSERVATION OF LEAVES – FREEZING



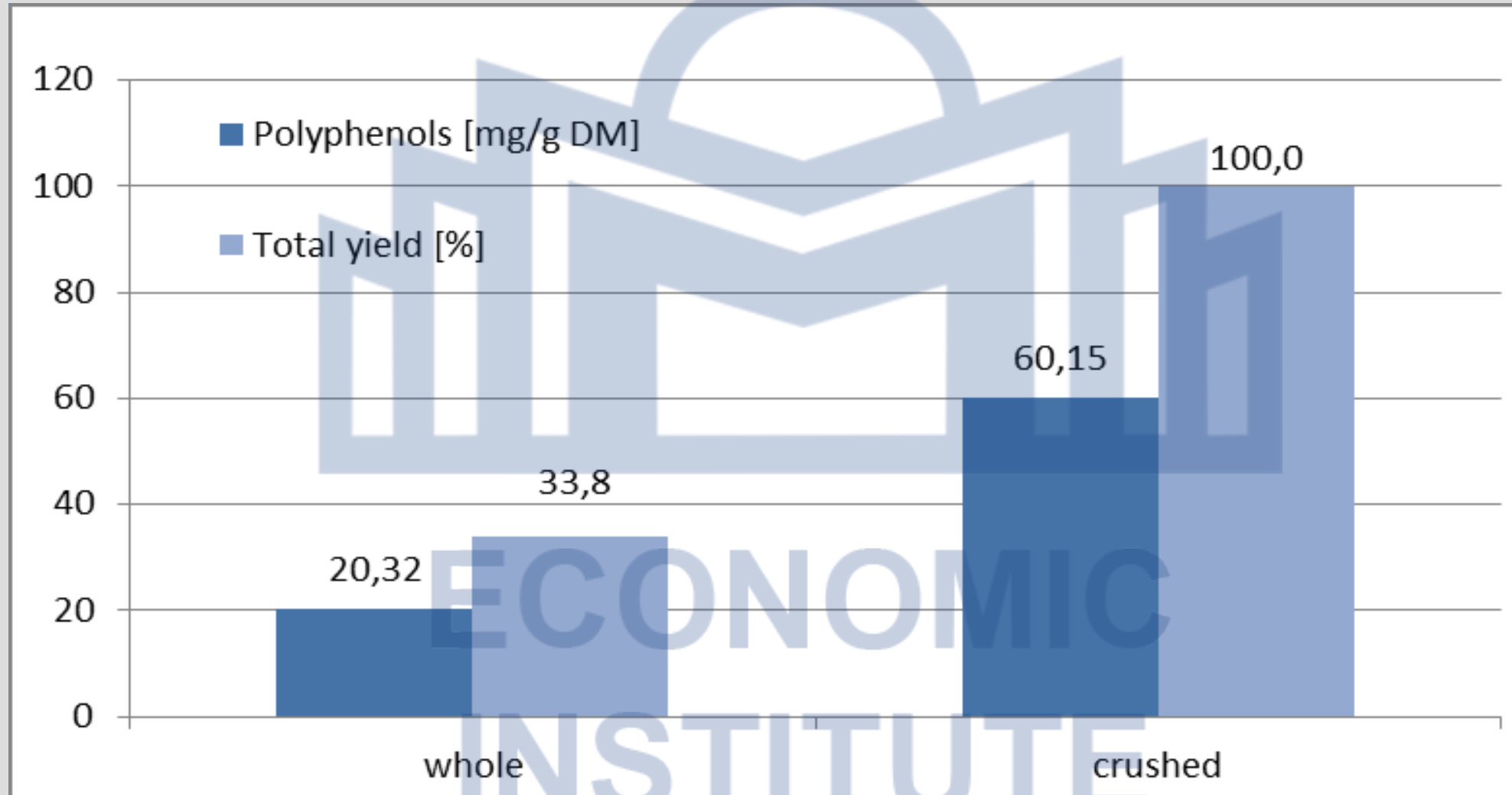
Polyphenol content depends on different freezing and drying processes



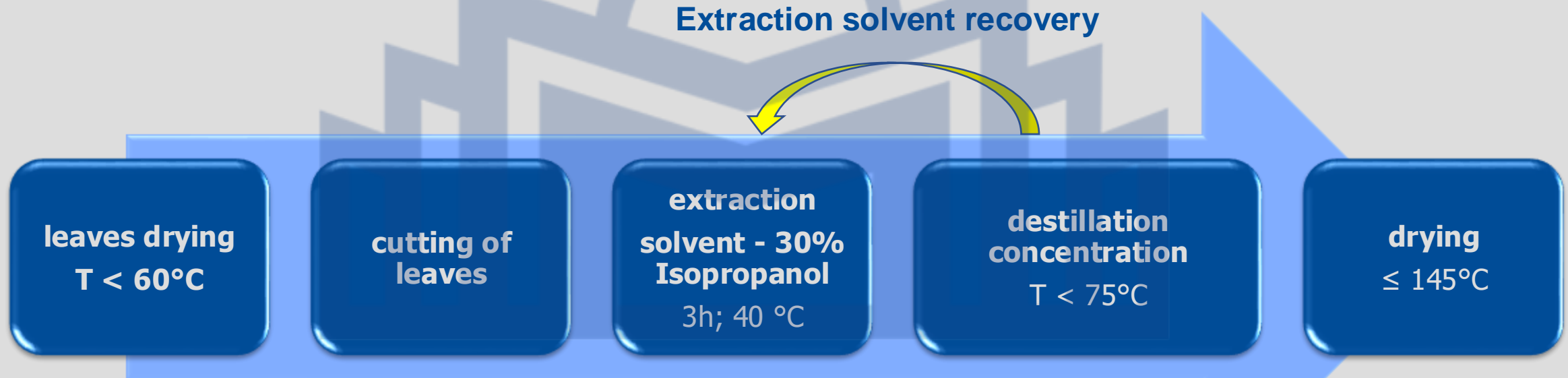
SOLVENT SELECTIVITY – SINGLE FLAVONOIDS AND TOTAL FLAVONOIDS (40°C, 3h)



EXTRACTION YIELD DEPEND ON PARTICLE SIZE



FLOW CHART EXTRACT PRODUCTION



ECONOMIC
INSTITUTE



ANALYSED COMPONENTS OF ONE EXTRACT



NIG PP in % (powder)	26
Protein %	4,3
Invert sugar %	25
Fat %	0,3
Ash %	10
Total acid as citric acid %	11
Ascorbic acid %	0,2
Flavonoids %	6,5
Water %	3,0
RELATION SUGAR / POLYPHENOLS	0,96

Σ 86%

POTENTIAL USE OF SEABUCKTHORN LEAVES AND EXTRACTS



FOOD

COSMETIC

**NUTRACEUTICALS
MEDICAL PRODUCTS**

TEXTILE INDUSTRY

LEATHER INDUSTRY

ADHESIVES

ANIMAL FEED

SEABUCKTHORN LEAVE EXTRACT – COSMETIC APPLICATION



- 1. Development of Age Protection Lifting Serum with 0,2% leave extract**
- 2. Development of Age Protection Day-Cream with 0,2% leaves extract**

Creams showed significant antiinflammatory effect in UVB-Erythema – test

Creams showed significant antioxidant effects

None of the preparations showed phototoxic or cytotoxic effects

Creams showed soothing effects

Reference: Skintegral Freiburg

SEABUCKTHORN LEAVE EXTRACT – COSMETIC APPLICATION



HAIR CARE AND HAIR COLORING PRODUCTS

left strain non-treated, right strain treated



SEABUCKTHORN LEAVE EXTRACT – TEXTILE APPLICATION



PREPARATION 1



PREPARATION 2



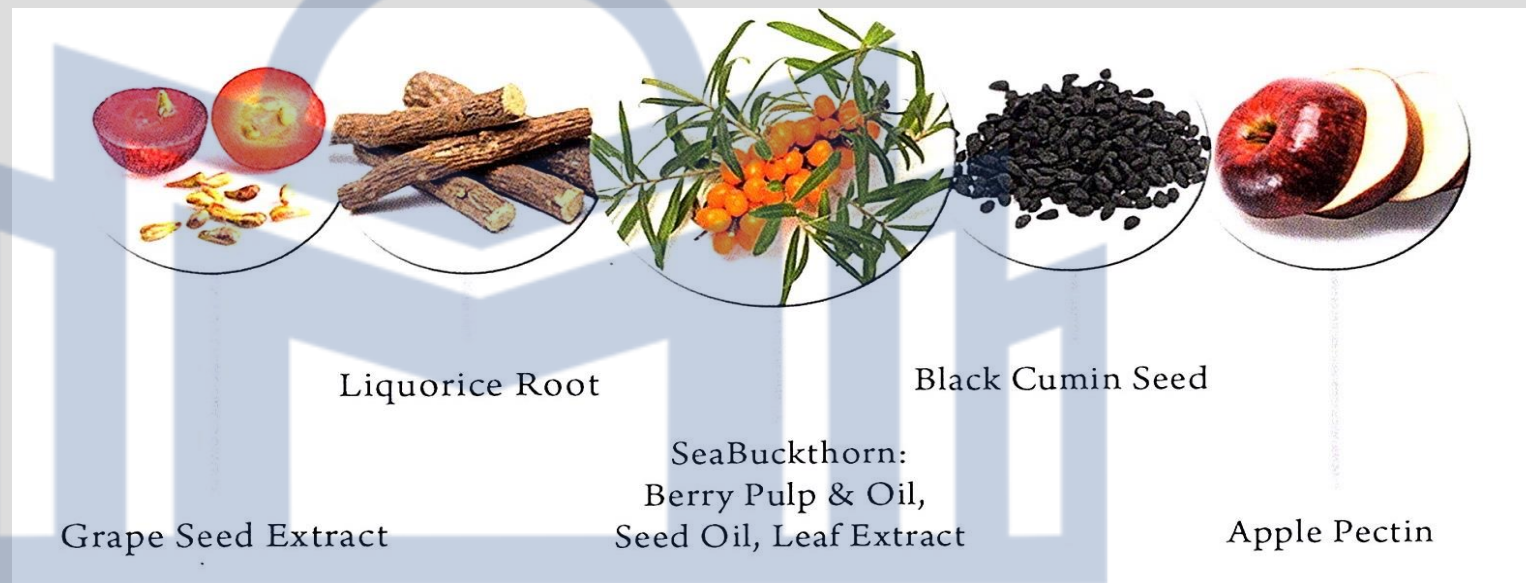
DYEING / PRINTING



RINSING



SEABUCKTHORN LEAVE EXTRACT – HORSE FEED



- **ADVANCED GASTRIC SUPPLEMENT**
- **HIGHLY PALATABLE**
- **SUITABLE FOR LONG TERM USE**
- **FEI COMPLIANT**

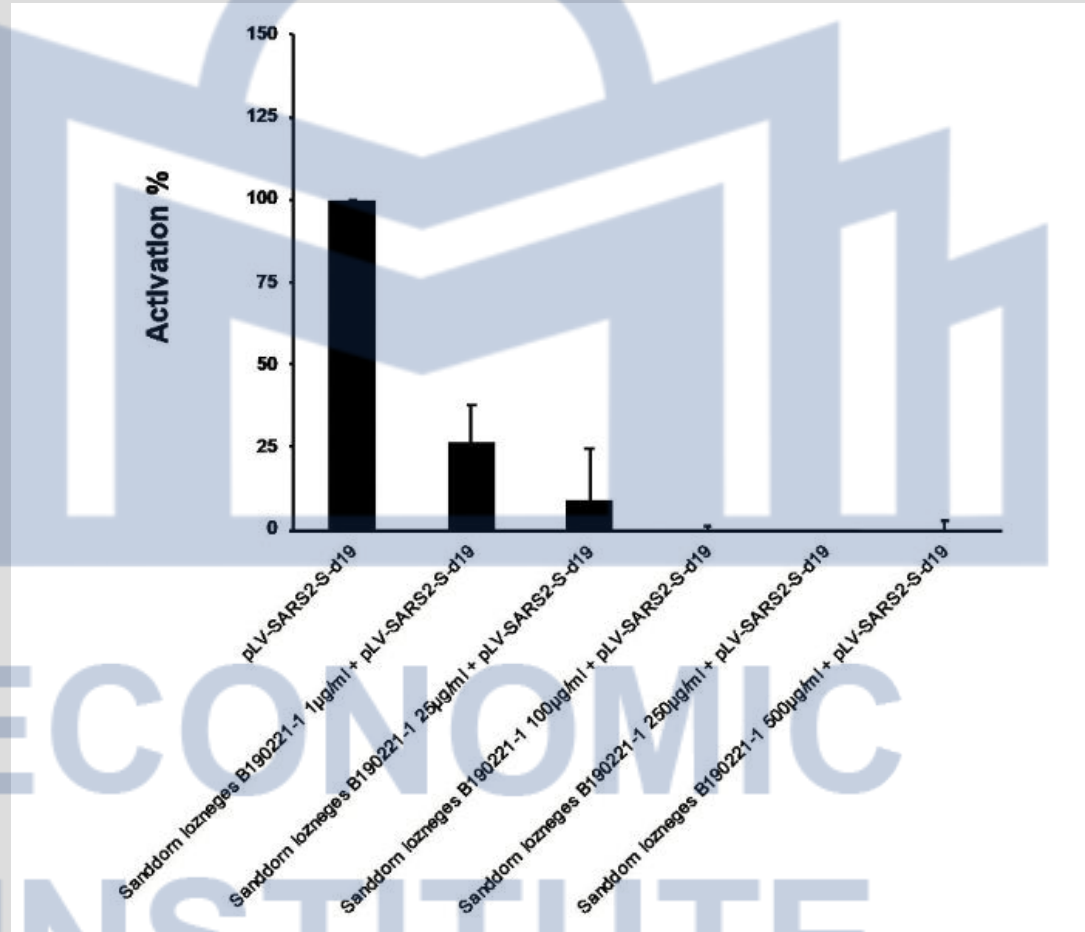


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SEABUCKTHORN LEAVE EXTRACT – LOZENGES



The lozenges are sold as a medical device and not as a pharmaceutical product!



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SEABUCKTHORN LEAVE EXTRACT – TANNING



The extracts can be used for leather tanning and re-tanning process without pickling (salt free). Pale to white leather is possible.

- **Goat**
- **Sheep**
- **Bovine**
- **Calve**
- **Crocodile**

THANK YOU ! БАЯРЛАЛАА !

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