



Procurement Department

Koprivnica, 24.05.2021.

**Project name:**

**KK.01.2.1.02.0069 „Development of innovative products from vegetable processing by-products“**

**Subject / purchase name: Laboratory analysis (flour, oil, cake – by-product after oil production)**

**Purchase denotation: 8. / A1.9**

**Information about user and person for the communication with the bidders:**

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- 1. Purchase group:** Nutritive quality analysis (nutritive composition, amino acid composition, fatty acids composition, flavonoids, acrylamides, sterols, vitamins, minerals)

**Estimated duration of monitoring:** June/21 – March/22

Sample type: pepper seed flour, pepper seed oil, pepper seed cake

**Number of samples:** 9

Matrices for the analyses are seeds, oil and cake originated from pepper, that is seeds extracted from pepper biowaste during processing. According to the available scientific research, these matrices have been analysed in a limited capacity or not at all for some parameters which gives this project added value.

All of the analysis parameters are shown in the following table. Because of the projects' research nature, as well as future dissemination of research results, the minimum condition of Bidder ability is that the Bidder can't subcontract services for analysis of certain parameters (from all parameters mentioned in the table). The parameters which need to be analysed in the Bidders own laboratory are as follows:

Group presence: monounsaturated, unsaturated, polyunsaturated, saturated fatty acids

Total polyphenols

Catechins

Rutin

Quercetin

Amino acid composition

Fatty acids composition

Group of tocopherol presence / vitamin E:  $\alpha$  – tocopherol,  $\beta$  – tocopherol,  $\gamma$  – tocopherol,  $\delta$  – tocopherol

Sterols (24-methylenecholesterol, campesterol, stigmasterol, beta-sitosterol, delta-5-avenasterol)

Sugars (glucose, xylose, mannose)

As proof of Bidder ability to perform a service of analysing certain parameters in their own laboratory, a Statement with a list of parameters signed by an authorized person of the Bidder or a document of equal worth will be accepted.

Seed flour, seed oil, seed cake		
<i>Parameter</i>	<i>Preferable Technique and/or Method</i>	<i>Approximate number of analyses*</i>
Moisture	Gravimetry / drying 105°C – 3h	18
Proteins	Dumas	18
Fat	Soxhlet	18
Sugars (glucose, xylose, mannose)	GC / HPLC	6
Group presence: monounsaturated, unsaturated, polyunsaturated, saturated fatty acids	GC - FID	18
TDF Total dietary fiber	Gravimetry	18
Soluble fibers	Gravimetry	18
Non soluble fibers	Gravimetry	18
Sodium (Na)	ICP / AAS	18
Ash content	Incineration/ gravimetry	18
Total Polyphenols	/	27
Catechins	/	3



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Rutin	/	3
Quercetin	/	3
Amino acid composition	HPLC	18
Fatty acids composition	GC - FID	18
Microbiology: total plate count, Enterobacteriaceae, E. coli, Salmonella sp., S. aureus, S. clostridia, Bacillus cereus, molds and yeasts	ISO	9
Vitamin C	HPLC	18
Group of tocopherol presence / vitamin E: $\alpha$ – tocopherol, $\beta$ – tocopherol, $\gamma$ – tocopherol, $\delta$ – tocopherol	HPLC	18
Group: delta K, K232, K270	Spectrophotometry	9
Density of oil/specific weight	/	9
Unsaponifiable matter	Hexane extraction	9
Saponification number	Titration	9
Wax content	GC	9
Refractive index	Refractometry	9
Allergens – eggs, mustard seed, soy, gluten, celery	PCR / ELISA / LCMS / MS	9
Group of pesticides according to Regulation EC 396 / 2005	GC – MS / LC MS / GC MS / MS	6
Chlorates and perchlorates	LC MS	6
Heavy metals - As, Cd, Hg, Pb	AAS / ICP	6
Minerals – K, Ca, Fe, Mg, Zn, Mn	AAS / ICP	9
Sterols (24-methylenecholesterol, campesterol, stigmasterol, beta-sitosterol, delta-5-avenasterol)	GC	9
Acrylamide	LC MS / MS	9

*\* The Client reserves the right not to order the entire quantity (estimated approximate number of analysis), or to order more than the approximate quantity, with consideration that Client is limited by the available financial resources and that this does not significantly change the procurement contract.*

**Payment:** The payment for this procurement item group is made successively after a minimum of 30 days after performing analyses and receiving a bill with specified analyses and number of analyses (from August 2021 till May 2022).

**The selected bidder needs to be ready to accept the following conditions:**

1. To prepare a document with an explanation and opinion for certain results of analyses, if the Client gives a request for it.
2. To deliver a detailed explanation of methods of analysis (for the purpose of result dissemination and preparing science articles) and detailed information about used chemicals and their traceability, if the Client gives a request for it.



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3. Complaint period (24 hours from receiving analytical report) in which the Client has the right to request control analysis from the Bidder.

**Criteria for the selection of the most favourable bidder:**

Lowest price is the only criteria to be considered in the selection of the best bid among the bids received.

**Contact person for technical questions:** Tanja Cvetković, A. Starčevića 32, 48000 Koprivnica,  
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