XXIV INTERNATIONAL ECO-CONFERENCE® 2020
23–25th SEPTEMBER

XI SAFE FOOD

ЕКОЛОШКИ ПОКРЕТ
НОВОГ САДА

PROCEEDINGS

NOVI SAD, SERBIA

XXIV INTERNATIONAL ECO-CONFERENCE
XI SAFE FOOD
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SAFE FOOD

PROCEEDINGS
2020.

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– Ecological Movement of Novi Sad

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– Russian State Agrarian University–MTAA, Moscow, Russian Federation
– International Independent Ecological–Politicology University in Moscow, Russian Federation
– Institute for Field and Vegetable Crops Novi Sad, Novi Sad, Serbia
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Official host of the XX International Eco-Conference® 2018
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THE ECOLOGICAL MOVEMENT OF THE CITY OF NOVI SAD: AN IMPORTANT DECISION OF ITS PROGRAMME COUNCIL

Since 1995, the Ecological Movement of the City of Novi Sad organizes "Eco-Conference® on Environmental Protection of Urban and Suburban Areas", with international participation. Seven biennial conferences have been held so far (in 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013 and 2015.). Their programs included the following environmental topics:

Session 1: Environmental spheres: a) air, b) water, c) soil, d) biosphere
Session 2: Technical and technological aspects of environmental protection
Session 3: Sociological, health, cultural, educational and recreational aspects of environmental protection
Session 4: Economic aspects of environmental protection
Session 5: Legal aspects of environmental protection
Session 6: Ecological system projecting (informatics and computer applications in the field of integrated protection)
Session 7: Sustainable development of urban and suburban settlements-ecological aspects.

Conference participants have commended the scientific and organizational levels of the conferences. Conference evaluations have indicated that some aspects are missing in the conference program. In addition, since a team of conference organizers was completed, each even year between the conferences started to be viewed as an unnecessary lag in activity.

Eco-Conference® on Safe Food

With the above deliberations in mind, a decision was made that the Ecological Movement of the City of Novi Sad should embark on another project – the organization of Eco-Conferences® on Safe Food. These Conferences were planned to take place in each even year. Preparations for the first Eco-Conferences® on safe food started after the successful completion of the Eco-Conference® '99.

So far four Eco-Conferences® have been held (in 2000, 2002, 2004, 2006, 2008, 2010, 2012 and 2014.) focusing this general theme.

Theme of the Eco-Conference®

By organizing the Eco-Conference® on Safe Food, the organizer wishes to cover all factors that affect the quality of human living. Exchange of opinions and practical experiences should help in identifying and resolving the various problems associated with the production of safe food.

Since 2007 Eco-Conference gained patronship from UNESCO and became purely scientific Conference.

Objectives of the Eco-Conference®

– To acquaint participants with current problems in the production of safe food.

– To make realistic assessments of the causes of ecological imbalance in the conventional agricultural production and the impact of various pollution sources on the current agricultural production.

– Based on an exchange of opinions and available research data, to make long-term strategic programs of developing an industrialized, controlled, integral, alternative and sustainable agriculture capable of supplying sufficient quantities of quality food, free of negative side effects on human health and the environment.

Basic Topics of the Eco-Conference®

Basic topics should cover all relevant aspects of the production of safe food.

When defining the basic topics, the intention was itemize the segments of the production of safe food as well as the related factors that may affect or that already have already been identified as detrimental for food safety and quality. The topics include ecological factors of safe food production, correct choice of seed (genetic) material, status and preparation of soil as the basic substrate for the production of food and feed, use of fertilizers and pesticides in integrated plant protection, use of biologicals, food processing technology, economic aspects, marketing and packaging of safe food.

To paraphrase, the envisaged topics cover the production of safe food on the whole, individual aspects of the production and their mutual relations, and impact on food quality and safety.

Sessions of the Eco-Conference®

1. Climate and production of safe food.
2. Soil and water as the basis of agricultural production.
3. Genetics, genetic resources, breeding and genetic engineering in the function of producing safe food.
4. Fertilizers and fertilization practice in the function of producing safe food.
5. Integrated pest management and use of biologicals.

6. Agricultural production in view of sustainable development
7. Production of field and vegetable crops.
8. Production of fruits and grapes.
9. Lifestock husbandry form the aspect of safe food production.
10. Processing of agricultural products in the framework of safe food production.
11. Economic aspects and marketing as segments of the production of safe food.
12. Food storage, transportation and packaging.
13. Nutritional food value and quality nutrition.
14. Legal aspects of protecting brand names of safe food.
15. Ecological models and software in production of safe food.

Attempts will be made to make the above conference program permanent. In this way will the conference become recognizable in form, topics and quality, which should help it find its place among similar conferences on organized elsewhere in the world.

By alternately organizing conferences on environmental protection of urban and suburban areas in odd years and conferences on safe food in even years, the Ecological Movement of the City of Novi Sad is completing its contribution to a higher quality of living of the population. Already in the 19th century, Novi Sad was a regional center of social progress and broad-mindedness. Today, owing first of all to its being a university center, Novi Sad is in the vanguard of ecological thought in this part of Europe.

It is our duty to work on the furtherance of the ecological programs of action and, by doing so, to make our contribution to the protection of the natural environment and spiritual heritage with the ultimate goal of helping the population attain e higher level of consciousness and a higher quality of living.

Director of the Ecological
Movement of Novi Sad
Nikola Aleksic

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MILLET – *Panicum miliaceum* L. PRODUCTION TREND IN THE WORLD. IMPORTANCE OF MILLET IN NUTRITION AND FOR BIOENERGY

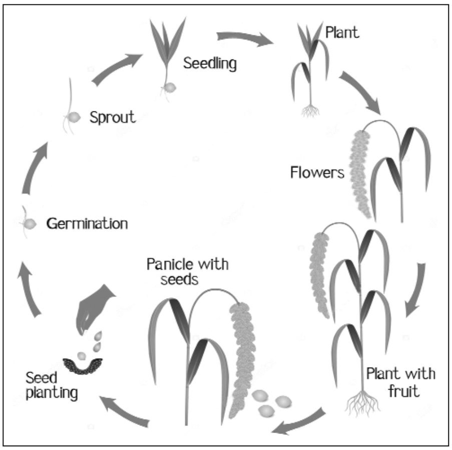
Abstract

The aim of this study was to examine the productivity of millet (*Panicum miliaceum* L.; *Poaceae*) in the world and its importance in the food and in industries. Millet has a high grain yield and is an important source proteins in food. It has high biomass yield which is why it is of great importance in bioenergy production. The priority is to procure raw materials and develop the process of biofuel production in an economical way. Millet has the least need for water, of other cereals and is a significant crop in sustainable systems. Millet grain is rich in iron, calcium and vitamin B complex (B_1, B_2, B_3). In addition to their nutritive value, helps prevent cancer and cardiovascular diseases, reduce tumor incidence, lower blood pressure, the risk of heart disease, cholesterol and rate of fat absorption have been reported for millet.

Key words: *Millet, production, nutritive value, biofuels*

INTRODUCTION

Millet (*Panicum miliaceum* L.; *Poaceae*) is the very significant old-new cultivated plants in the world. It produces high yields of biomass and grains and is an important source of energy and proteins (Popović et al, 2018; 2019; Lakić et al., 2018). There are about 500 species of millet worldwide but only a few species of millet are commonly cultivated as food crops: pearl millet (*Pennisetum glaucum*) is the most commonly produced type of millet (Africa and India), Finger millet (*Eleusine coracana*), proso millet (*Panicum miliaceum*), fonio millet (*Digitaria exilis*), millet (Panicum germanicum) and foxtail millet (*Setaria italica or* synonym *Panicum italicum*), Picture 1-4. Millet are important crop species in developing countries. It is a gluten free cereals. As we know "gluten free" foods have become incredibly popular in recent years as many people recognize the fact that they simply feel healthier by eliminating the 3 grains containing gluten (wheat, rye and barley). Millet is one of the most important drought-resistant crops and the 6th cereal crop in terms of world agriculture production. Also, millet has resistance to pests and diseases, short growing season, and productivity under drought conditions, compared to major cereals (Devi et al., 2011). Millet grains



Picture 1. A growth cycle of foxtail millet plant on a white background. 281123230

Picture 2. Common millet

Picture 3. Foxtail millet

Picture 4. Setaria millet Chromosome number:2n=18

are now receiving specific attention from developing countries in terms of utilization as food and from some developed countries in terms of its good potential in the manufacturing of bioethanol and biofilms (Li et al., 2008).

Millet is one of the oldest domesticated diploid C4 Panicoid crop, having a short life cycle, and an inbreeding nature. Millet has characteristics that classify it as an excellent model for examine several aspects of the architectural, evolutionary and physiological importance of crops, especially biofuel crops. Millet is a staple crop used extensively for food and fodder in certain parts of Asia and Africa. In its long history of cultivation, it has adapted to arid and semi-arid areas of Asia, North Africa, South and North America. Millet would be useful as bioenergy grass species (Glamočlija et al., 2015; Popović et al., 2018). Vast quantities of agricultural and agro-industrial residues that are generated as a result of a diverse agricultural process represent a valuable and rich energy resource. Unuse of produced biomass in large quantities yearly results in a huge loss of potential valuable and nutritional materials which when processed, could contribute a good seed yield, and a variety of chemicals for humans and animals alike. Biomass currently contributes about twenty five percent of the world energy requirements, which is equivalent to twenty million oil barrels of fuel per day. It is currently the leading economic force are of Brazil and the United States where biomass contributes three percent of their total energy consumption. Millet can be used as a quick growing catch crop, planted into corn and sorghum stubble fields. It is well planted in combination with cowpea or soybeans (Glamočlija et al., 2015). It has one of the lowest water requirements then any cereal, and could be useful in low-input sustainable systems. Early sowing plants give the largest amount of biomass.

Agro-technology has a significant effect on plant productivity. Traditional farmers valued millet for its nutritional content and health promoting properties, its ability to grow in low input conditions as well as its tolerance to extreme environments, especially drought. In a world facing limited natural resources and climate change, these crops hold tremendous potential as valuable instruments in the New Green Revolution (Glamočlija et al., 2015; Popović, 2015; Popović et al., 2018; 2019). Hopefully germplasm resources combined with modern genomic tools will help acceleration exploitation of biodiversity. The aim of this study was to show millet production in the world and determine its significance and applicability considering that he owns great technological quality of grain.

MATERIAL I METODS

This paper analyses the millet production parameters in the world during the period from 2016-2018. The research is based on the available data already existing in related statistical publications. Data from FAO 2020 were used (http://faostat.fao.org/). For the calculation included in this study we used a basic statistical method comprising of the following for standard deviation. All results are presented in tables and pictures.

RESULTS AND DISCUSION

In the tested period 2016-2018, cereals (maize, wheat, rice, barley, sorghum, oats millet and buckwheat) occupied an area of 721.96 million hectares, producing about 2,878.24 million tons of grains (Table 1). The largest areas were under wheat (217.27 mill. ha), followed by maize (195.50 mill. ha), rice (165.37 mill. ha), sorghum (48.09 mill. ha), barley (43.28 mill. ha), millet (31.90 mill. ha), oats (9.83 mill. ha) and buckwheat (3.34 mill. ha). In terms of area, millet ranks 6th in world grain production. World production of millet grains amounted to about 29.04 million tons on 31.90 million hectares. Average grain yield of millet in tested period is 0.9 t ha^{-1}, Table 1. Millet grain is used for human, bird and other animal consumption, but also for ethanol production, etc. Millet is one of the most important drought-resistant crops and the 6th cereal crop in terms of world agriculture production. Also, millet has resistance to pests and diseases, short growing season, and productivity under drought conditions, compared to major cereals (Devi et al., 2011). The millet annual needs for water are about 500 mm, which makes it an important crop for the areas that are too dry for maize production. Millet is known for its drought tolerance. It is tolerant to different soil types (Popović et al., 2018). Millet grains are now receiving specific attention from these developing countries in terms of utilization as food as well as from some developed countries in terms of its good potential in production of bioethanol and biofilms (Li et al., 2008). The world average production of millet grains at tested years was 3.31 mill. tons. Areas under millet record a growth trend, and vary from 30.51 mill. ha (2017) to 33.56 mill. ha (2018) (Table 1). The largest areas under millet are in India. Millet is known as ragi and mandia in the Bastar region of Chhattisgarh and it offers both nutritional and livelihood security for human beings and also feed security for diverse livestock populations of dry-land of rural India regions (Pradhan et al., 2010).

Table 1. Growing area, production and yield of the most common cereals [FAO 2020]

Plant	Year	Maize	Wheat	Rice	Barley	Sorg hum	Oats	Millet	Buck -wheat	**Total**
World										
Area, mill. ha	2016	195.6	219.10	162.9	48.19	46.13	9.49	31.64	3.02	**707.07**
	2017	197.2	218.42	166.1	48.16	41.56	10.16	30.51	3.99	**716.10**
	2018	193.7	214.29	167.1	47.93	42,14	9.85	33.56	3.01	**742.72**
Average		195.5	217.27	165.37	43.28	48.09	9.83	**31.90**	3.34	**721.96**
Std. Dev.		1.75	2.60	2.19	2.49	0.14	0.34	**1.54**	0.56	**18.53**
Yield, t/ha	2016	5.76	3.42	4.16	3.03	1.38	2.49	0.87	1.01	**22.12**
	2017	5.89	3.54	4.64	3.09	1.39	2.57	0.90	1.00	**24.69**
	2018	5.92	3.43	4.68	2.95	1.41	2.34	0.92	0.97	**24.04**
Average		5.86	3.46	4.49	1.39	3.02	247	**0.90**	0.99	**23.62**
Std. Dev.		0.09	0.07	0.29	0.02	0.07	0.12	**0.03**	0.02	**1.34**

Production, mill. t	2016	1126.9	748.4	751.9	145.9	63.7	23.65	27.71	3.06	**2791.21**
	2017	1164.4	773.5	769.8	149.1	57.7	26.11	28.37	3.97	**2955.10**
	2018	1147.6	734.1	782.0	141.4	59.3	23.05	31.03	2.91	**2921.40**
Average		1146.3	751.9	767.9	60.24	145.5	24.27	**29.04**	3.31	**2878.24**
Std. Dev.		18.78	19.9	15.14	3.07	3.8	1.62	**1.76**	0.57	**75.37**

Serbia

Plant	Year	Maize	Wheat	Ray	Barley	Sorghum	Oats	Millet	Total
Area, 000 ha	2016	1010.01	595.12	4.89	91.53	2.62	27.54	0.106	**1731.82**
	2017	1002.32	556.12	4.67	84.69	2.59	28.54	0.129	**1679.26**
	2018	901.75	643.08	4.74	105.74	2.61	26.11	0.086	**1749.54**
Average		971.36	598.11	4.83	93.99	2.61	49.20	0.110	**1720.20**
Std. Dev.		60.41	43.56	0.08	10.74	0.02	36.66	0.02	**36.55**
Yield, t/ha	2016	7.30	4.85	2.90	4.32	3.05	2.95	0.98	**26.35**
	2017	4.01	4.09	2.41	3.61	3.06	2.44	1.33	**17.95**
	2018	7.72	4.57	2.83	3.88	3.07	2.86	1.33	**26.26**
Average		6.34	4.50	2.71	3.94	3.07	2.75	1.21	**23.52**
Std. Dev.		2.03	0.38	0.27	0.36	0.01	0.27	0.20	**4.82**
Production, t	2016	7376.74	2884.54	14.20	395.50	7.99	81.34	104.00	**10864.31**
	2017	4018.70	2275.62	11.25	305.49	7.94	69.54	172.00	**6860.54**
	2018	6964.77	2941.60	13.42	410.14	7.97	74.71	114.00	**10526.61**
Average		6120.07	270059	12.96	370.38	7.97	75.20	130.00	**9417.15**
Std. Dev.		1931.46	369.14	1.53	56.67	0.03	5.92	36.72	**2220.52**

Millets are placed as a single important commodity in the North American and European food-basket at the present time, but its their importance as an ingredient in multi-grain food and gluten-free cereal products has been highlighted. However, in many African and Asian areas, millets serve as a major food component and various traditional foods and beverages, such as bread (fermented or unfermented), porridges, and snack foods are made of millet, specifically among their societies non-affluent segments (Chandrasekara and Shahidi, 2011a; Chandrasekara et al., 2012). The Serbia, at tested years, average yield of millet grains was 1.2 t ha^{-1} and production was 130 tons. Areas under millet varied from 86 ha (2018) to 129 ha (2017), Table 1.

Technological quality of millet. In addition to its nutritive value, several potential health benefits of millet have been reported: preventing cancer and cardiovascular diseases, reducing tumor incidence, lowering blood pressure, risk of heart disease, cholesterol and rate of fat absorption, delaying gastric emptying, and supplying gastrointestinal bulk have been reported for millet (Truswell, 2002; Gupta et al., 2012). Millet grains, before consumption and for preparing of food, are usually processed by commonly used traditional processing techniques include decorticating, malting, fermentation, roasting, flaking, and grinding to improve their edible, nutritional, and sensory properties.

Millet grain contains 364 kCal Energy, polysaccharides, proteins and lipids. Their grain content varies depending on the genotype, environmental conditions, location and production technology. Millet grain contains 12-13% protein, 3.5% fat, 64% starch, crude fiber 5.2%, ash 3.1-4%, Ca 8 mg, Fe 2.9 mg. Millet sprouts are rich in B-complex vitamins. Niacin (vitamins B_3), which is the main ingredient (0.41%), is accompanied by vitamins B_1_thiamin 0.41 mg and vitamin B_2-riboflavin (0.28 mg), tab.2.

Table 2. Nutrion composition of cereals
(per 100 g edible portion, 12% moisture)

Food**	Pro-tein*	Fat	Ash	Grude fiber	Carho-hydrate	Energy	Ca	Fe	Thia-min	Ribo-flavin	Niacin
Crops	g					kcal	mg				
Maize	9.2	4.2	1.2	2.8	73.0	358	26.0	2.7	0.38	0.20	3.60
Wheat	11.6	2.0	1.6	2.0	71.0	349	30.1	3.5	0.41	0.10	5.10
Rice	7.9	2.7	1.3	1.0	76.0	362	33.1	1.80	0.41	0.04	4.30
Sorghum	10.4	3.1	1.6	2.0	70.7	329	25.0	5.4	0.38	0.15	4.34
Common millet	**12.5**	**3.5**	**3.1**	**5.2**	**63.8**	**364**	**8.0**	**2.9**	**0.41**	**0.28**	**4.50**
Foxtail Millet	11.2	4.0	3.3	6.7	63.2	351	31.0	2.8	0.59	0.11	3.21
Little millet	9.7	5.2	5.4	7.6	60.9	329	17.0	9.3	0.30	0.10	3.20

* All values except protein are expressed on a dry weight basis. Sources: Hulse et al. (1980); United States National Research Council/National Academy of Sciences (1982); USDA/HNIS (1995); FAO (1995).
** Saleh et al., 2013

Millet has great nutritional value, does not contain gluten and is easily digested (Hulse et al., 1980). Nutritional value of cereal grains as animal feed is shown in Table 3. The digestible energy of millet is about 2665 kcal kg^{-1}. Millet contains about 89% dry matter, 12% protein, total digestible nutrients about 61%, Ca 0.12% and about 0.46% P, Table 3. Environmental conditions have important effects on production of quality grain of millet (Popovic et al., 2017; 2018). Grain quality of millet is a comprehensive trait, including nutritional quality as well as cooking and eating quality (Suman et al., 2015). The quality of millet grains is significantly affected by the choice of variety / genotype. Another major environmental factor that affected grain quality of millet was precipitation. At different growth stages, precipitation of July (booting-heading stage) showed the greatest effect on the grain quality of millet. For millet, the stage when the fructification organ of foxtail millet is completely developed and ready to be filled is period when water-consuming is largest. In this stage, if there is sufficient water and smooth transport of nutrients, the ear node will quickly extend the flag leaf and the ear can be fully developed, which is conducive to the formation of high-quality foxtail millet with high protein and fat content (Zhao et al., 2002).

Table 3. Nutritional value of cereal grains as animal feed

Food	Dry matter (%)	Protein (%)		TDN*	Energy (kcal/kg)		Ca (%)	P (%)
		Total	Dige-stible		Dige-stible	Metabo-lizing		
Maize	89.12	9.21	6.82	81	3571	2928	0.12	0.31
Wheat	89.21	13.04	10.12	78	3449	2820	0.50	0.40
Barley	90.14	8.72	6.92	79	3483	–	0.06	0.33
Sorghum	87.15	15.21	7.33	86	3772	3093	0.12	0.44
Oats	89.24	11.84	8.85	68	2998	2458	0.10	0.35
Millet	**89.05**	**11.91**	**5.15**	**61**	**2665**	**2185**	**0.12**	**0.46**

* TDN – Total Digestible Nutrients; Source: Somani i Taylor 2003.

The precipitation at the other growth stages had less effect on the grain quality of foxtail millet. Diurnal temperature range was also an important environmental factor affecting grain quality of foxtail millet. At different growth stages, the diurnal temperature range of July-September (booting, heading, and grain filling stages) showed greater effects on the grain quality of millet. This period is critical for the formation of grain quality of millet, when a large diurnal temperature range is conducive to the formation and accumulation of starch, fat, protein and other nutrients in the grain of foxtail millet. Owing to warmer daytime temperatures, photosynthetic enzyme activity increases in crops, leading to an enhancement of photosynthesis. The temperature is relatively low at nighttime, therefore the respiratory enzyme activity decreases and respiration is attenuated. This results in higher synthesis and lower consumption, which favors the formation, accumulation, and transformation of nutrients in crop grains, thereby contributing to the accumulation of secondary metabolites (Zhao and Li, 2005; Li et al., 2011). Nutritional quality of food is a key element in maintaining human overall physical well-being because nutritional well-beingis a sustainable force for health and development and maximization of human genetic potential. Therefore, for solving the problem of deep-rooted food insecurity and malnutrition, dietary quality should be taken into consideration (Singh and Raghuvanshi, 2012). Millets are also rich sources of phyto-chemicals and micronutrients (Mal et al., 2010; Singh et al., 2012). Millet protein characterization showed that its protein concentrate is apotential functional food ingredient and the essential amino acid pattern suggests possible use as a supplementary protein source to most cereals because it is rich in lysine (Mohamed et al., 2009).

Millet is also of great importance for energy purposes. In order to improve energy security from the aspect of environmental protection, highly developed countries introduce programs production of alternative biofuels methane, ethanol and biodiesel from products of plant origin. From alternative biofuels in application can be found: methanol, biomethanol, bioethanol, biodiesel, natural gas, hydrogen, etc. The most common raw materials for biomass from agriculture are: sugar cane, sugar beet, sugar sorghum, maize, wheat, barley, millet, buckwheat, oilseed rape, sunflower, flax, potatoes, olives, palm trees as well as the remains of forest masses, some types of waste (municipal and secondary; etc.). The main advantages of biofuels are, that it is a renewable and inexhaustible source of energy-fuel, which emits less pollution into the atmosphere than conventional fuel. In addition, these fuels are CO_2 neutral, wich means, they broadcast, but also consume CO_2. Main agricultural product, grain is used in the diet as a health safe product, while for obtaining biofuels biomass can also be used. Biofuels, derived from biomass, have the potential to replace petroleum fuels, thus preserving the environment and sustainability but also reduce fuel and emission costs. The priority is to get the basic raw materials and develop the process of biofuel production from renewable sources (Petrović et al., 2011; Popović et al., 2018) from crop biomass. Millet is of great importance in nutrition and medicine. Zang et al. (2014) points out that millet millet has antioxidant and antiproliferative properties. The bound fraction contributed about 65% of the total phenolic content of the tested millet varieties. Millet millet is also rich in bioactive phytochemicals, including ferulic acid, chlorogenic acid, syringic acid, caffeic acid and p-coumaric, suggesting its potential benefits to human heath.

CONCLUSION

Millet is of great importance in nutrition, medicine also of great importance for energy purposes, in production biofuels. Millet has great nutritional value, does not contain gluten and is easily digested. Environmental conditions have important effects on production of quality grain of millet. Millet grain contains protein, fat, starch, crude fiber, ash, Ca, Fe, and are rich in B-complex vitamins; niacin (vitamins B_3), thiamin (vitamins B_1) and vitamin B_2 – riboflavin. In addition to their nutritive value, helps prevent cancer and cardiovascular diseases, reduce tumor incidence, lower blood pressure, the risk of heart disease, cholesterol and rate of fat absorption have been reported for millet.

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ТРЕНД ПРОИЗВОДЊЕ ПРОСА – *Panicum miliaceum* L. У СВЕТУ. ЗНАЧАЈ ПРОСА У ИСХРАНИ И ЗА БИОЕНЕРГИЈУ

Извод

Циљ ове студије био је да се испита продуктивност проса (*Panicum miliaceum* L.; *Poaceae*) у свету и прикаже његов значај у исхрани и у индустрији. Просо ima висок принос zrna и важан је извор протеини у храни и има висок принос биомасе због чега има велики значај у производњи биоенергије. Приоритет је набавити сировине и развити процес производње биогорива на економичан начин. Просо има најмање потребе за водом од осталих жита и значајан је усев у одрживим системима. Зно проса богато је са гвожђем, калцијумом и комплексом витамина Б ($Б_1$, $Б_2$, $Б_3$). Поред његове храњиве вредности, помаже у превенцији карцинома и кардиоваскуларних болести, смањењу инциденције тумора, сни-жавању крвног притиска, ризику од болести срца, холестерола и брзини апсорпције масти.

Кључне речи: *просо, производња, храњива вредност, биогорива*

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