



BULGARIAN NATIONAL FOLK ELEMENTS FOR THE CONTEMPORARY FASHION

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Abstract: The article explores Internet sites featuring authentic non-commercial folk costumes and those offering modern stylized folk costumes for commercial purposes. A survey of consumer opinion was made in the selection of elements of folk costumes. Through simulation software are proposed variants of modern garments that use selected from consumer items. It has been found that consumers prefer elements with low solidity and high value of coefficient of the form. The results of the research can be applied in the training of future specialists in the study of shaping, coloring and design of clothing.

Keywords: Bulgarian national folk costume, Embroidery, Internet sites, Image analysis

1. Introduction

The advanced design looks for the ideal link between small queries and moderately low creation costs. In order to ensure the achievement of the clothing market, the designer can create and apply techniques with a variety of innovative methodologies. As a matter of the look of clothes, fabrics are tools through which they are ultimately attractive to customers. The weaving elements of the Bulgarian national clothing, their shapes, nuances and sizes between them are the reasons for the production of clothes [19,28].

The development of innovation in the material business has achieved the woven fabrication pattern of machine weaving. Given the ultimate goal of making quality outlines the shapes to be weighed, they should be divided into locales that characterize different parts.

The varied forms of Bulgarian folk clothing and its dignity are an inexhaustible source of ideas for diversifying and embellishing modern clothing.

The aim of the report is to study the presentation and supply of Bulgarian folk costumes and to analyze the consumer opinion when choosing elements for modern fashion by proposing the application of the chosen motifs in modern clothes.

The article is structured in the following **order**: We studied Internet sites presenting authentic folk costumes Non-Commercial and those offering modern stylized costumes for commercial purposes; A survey of consumer opinion was made in the selection of elements of folk costumes; Through simulation software are proposed variants of modern garments that use selected from consumer items.

2. Presentation and use of Bulgarian folk costumes and their elements

The websites that represent Bulgarian folk costumes can be divided into two main groups – non-commercial and commercial. The first type on the site is mainly traditional folk costumes in their authentic appearance. A description and pictures of such costumes are provided. The commercial websites present modern stylized variants of folk costumes,

which are intended for folklore compositions, public appearances, theater performances and more.

On figure 1 are presented original authentic Bulgarian national folk costumes. By its nature, the folk costume is the everyday work wear, which, through artistic decoration, acquires a festive appearance. It is distinguished by its outstanding practicality in labor, traditional rituals and celebrations. The folk costume is male and female, festive and every day, as in each of the Bulgarian ethnographic regions they are distinguished by their specificity and uniqueness [1].

			
Ritual maid costume of a lazarka, village of Byala, Sliven [23]	Folk costume of Kariotska ethnic group [11]	Folk Costume from Kazanlak [1,4]	Female Costume – village of Stresimirovtsi, Pazardjik [23]
Fig.1. Examples of Bulgarian national folk costumes			

On figure 2 are presented stylized Bulgarian national folk costumes. The folk costumes offered are copies of the traditional ones, using modern textile fabrics, sewing and embroidery machines.

			
Bulgarian Northern Lady Costume [22]	Thracian women's costume [24]	Varna ladies suit [15]	Bulgarian Northern Lady Costume [25]
Fig.2. Examples of stylized Bulgarian national folk costumes			

On figure 3 are presented Examples of modern fashion with Bulgarian folklore motifs. The Eastern European traditional costumes are unique with their colors, motifs and embroidery. This is the reason many designers to use these motifs in their clothes.

The Italian fashion designer Valentino often interprets the motifs of traditional clothing and other nations in the lines he presents, and the clothes inspired by the Bulgarian costume are really impressive. The models look different and stylish at the same time. They present the authentic spirit, tradition and identity of East Europeans.

The designer Pierre Cardin worships our folklore and represents it in his clothes because Bulgarian costumes are a fashion masterpiece that he could not create.

On the Bulgarian market also appeared dressings and accessories inspired by folklore.

			
<p>Lady's dress with symbol 'Elbetitza' [16]</p>	<p>Lady's costume of Valentino [9]</p>	<p>Embroidery on dark blue tunic from Isabel Marant [12]</p>	<p>Lady's blouse with embroidery [13]</p>
<p>Fig.3. Examples of modern fashion with Bulgarian folklore motifs</p>			

3. Analysis of websites that present Bulgarian nation folk costumes

The analysis of the resulting data set of indexing of the websites is realized with the methods ABC and VED, well described in detail in [3], the results of which are combined.

- The ABC analysis is to control raw material components and work-in-progress inventories in the normal course of business. Here this method is used for measuring the change of number of publications and for analysis of the indexing of websites;
- The VED analysis is to determine the stocking levels of spare parts. It is used for analysis of the indexing of the web pages related to change of the indexing of websites;
- An ABC-VED grouping was used, where groups A-V and A-E rank high-indexed websites on Google and Yandex [5].

Table 1 presents the results of the survey of 12 websites presenting Bulgarian folk costumes. The sites are non-commercial in nature and are mainly of museums and enthusiasts who support Bulgarian traditions by presenting them in languages other than Bulgarian.

Table 1.
A comparative analysis of non-commercial Websites that presents Bulgarian national folk costumes

Name of the manufacturer	General Web address	№	Structure of the Website	Language except Bulgarian	Search in site options	Presentation of the folk costume	Information about the folk costume	Free to download pictures	Yandex indexing	Google indexing
ITCOMEL	http://www.spge-bg.com	P1	M	N	N	Y	Y	Y	500	613
Dechica	http://dechica.com/Article/Details/1689	P2	H	N	N	Y	Y	N	10000	33900
Hora BG	http://www.bghora.com	P3	H	Y	N	N	Y	Y	30	2200
Bulgarian folclore	http://www.bulgarian-folklore.com	P4	M	Y	Y	Y	Y	Y	10	218000
Folklore BG	http://www.folklore-bg.com	P5	M	N	Y	N	Y	Y	30	4810
Ot izvora	http://www.otizvora.com/2010/03/1012	P6	M	N	N	Y	Y	Y	800	15200
Ziezi	http://ziezi.net/	P7	M	N	N	Y	N	Y	6000	534
Site Bulgari zaedno	http://www.sitebulgarizaedno.com	P8	M	N	Y	Y	Y	Y	200	2400
Beu	http://www.beu.bg	P9	M	N	Y	Y	Y	Y	800	162000
Bulgaria travel	http://bulgariatravel.org	P10	H	Y	Y	Y	Y	Y	20000	39900
Bulger duhovnost	http://bulger-duhovnost.free.bg	P11	M	N	N	Y	Y	Y	10	15
Horo	http://horo.bg	P12	M	Y	Y	Y	N	Y	700	40400

H-very well structured; M-acceptable structure; L-poorly structured. Y-yes; N-no

The ABC-VED analysis takes into consideration the Internet sites within the A-V, A-E, A-C, B-V, B-E groups. The results, presented in Table 2 show that 7 of the 12 sites fall into the indicated groups according to their indexing. In group A-V has neither a website as there is no one that is dominant in indexing the rest. It can be seen from the table that sites that have a good structure are also the highest indexes - P2, P6, P10. Also, on the mentioned websites there is information about the national costumes in English and other languages.

Table 2.
ABC-VED analysis of the indexing of websites in Yandex and Google

	V	E	D
A	-	P10, P2, P6	P7
B	P9	P12, P8	P1, P3
C	P4	P5	P11

Table 3 presents the results of a survey of commercial Internet sites featuring stylized folk costumes. These sites offer folk costumes for folklore, theater, public appearances and more. The folk costumes offered are copies of the traditional ones, using modern textile fabrics, sewing and embroidery machines.

Table 3.
A comparative analysis of Websites with manufacturers of stylized Bulgarian folk costumes

Name of the manufacturer	General Web address	№	Structure of the Website	Language except Bulgarian	Search in site options	Presentation of the folk costume	Information about the folk costume	Free to download pictures	Yandex indexing	Google indexing
Mely-M	https://nosii.com/category/1/narodni-nosii.html	S1	H	Y	Y	Y	N	Y	300	505
Pen silhouette	http://www.pensiluet.com/narodni-nosii	S2	M	Y	Y	N	N	Y	90	35
Balkanfolk	http://www.balkanfolk.eu/narodni-nosii.php	S3	H	N	N	Y	N	Y	100	114
Leila	http://www.leila.bg/nosii-v-nalichnost/	S4	M	N	Y	Y	N	Y	10	23

Bozov style	http://www.bozovstil.com/	S5	M	Y	Y	N	Y	Y	10	700
Mia moda	https://miamoda.alle.bg	S6	M	N	N	Y	N	Y	7	31
Shevitsa	http://www.shevitsa.com/en/index.php	S7	M	Y	N	Y	N	Y	80	58
Bebeshki dreshki	http://bebeshkidreshki.com	S8	H	Y	Y	Y	N	Y	100	492
Galatea Varna	http://galatea.bg.net/	S9	M	Y	Y	Y	N	Y	100	196
Perlita	https://perlitabg.eu/	S10	H	N	Y	Y	Y	Y	30	360
Lili style	http://www.narodninosii.com/	S11	H	N	Y	Y	Y	Y	40	100
Etnorai	http://www.etnorai.com/	S12	M	Y	N	Y	N	N	40	9
Slancho	http://www.slancho.net/bg/products/narodni-nosii/	S13	M	N	Y	Y	N	Y	100	414
BG family	http://bgfamily.bg	S14	M	Y	Y	Y	N	Y	200	688

H-very well structured; M-acceptable structure; L-poorly structured. Y-yes; N-no

The results of the ABC-VED analysis, presented in Table 4 show that there are four indexing sites that fall into group A-V. These are S1, S8, S13, S14. They have a good content structure, information in English and other languages, except Bulgarian, advanced page search capabilities.

Table 4.
ABC-VED analysis of the indexing of websites in Yandex and Google

	V	E	D
A	S1, S14, S8, S13	S9, S3	-
B		-	S2, S7, S11, S12
C	S5	-	S4, S6

The review of Internet sites presenting traditional costumes and stylized items offered for commercial purposes shows that folk costumes with their elements, shapes and colors remain relevant and sought a modern stage. They are also used in the design of fashionable clothing [8,14,20,27].

The form of clothing in folk costumes is made up of different elements. When the consumer perceives the appearance of the clothing, he or she unintentionally, on an emotional basis or consciously, on a rational-valuation path, compares the individual elements by size, area, volume, size of color spots, invoice, rhythm and other characteristics [2,7,17,18].

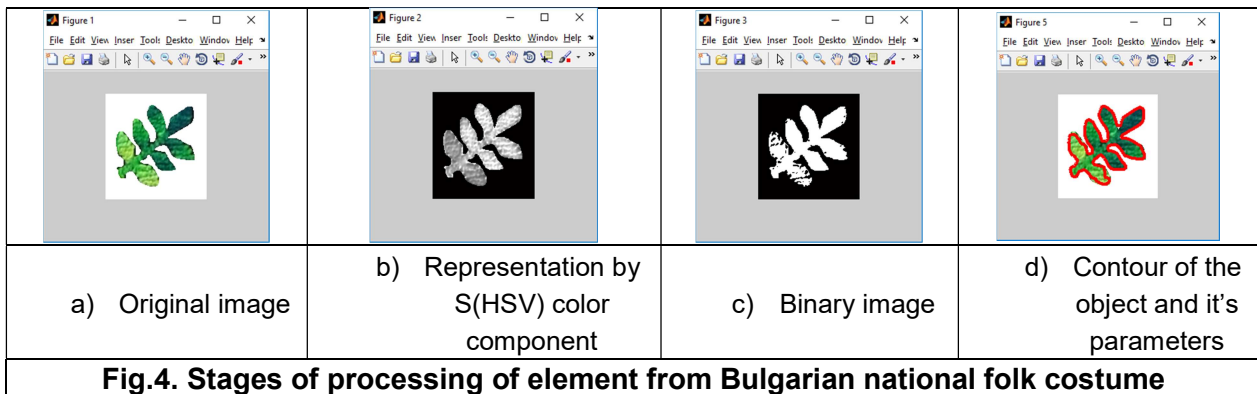
What is said here is a prerequisite to a survey on customer reviews when selecting items for contemporary clothing using their geometric descriptions.

4. Analysis of the geometric properties of motifs from Bulgarian national folk costumes

Embroidery is a beautiful thread work on a Bulgarian folk costume which makes it more attractive and appear gorgeous. The Bulgarian embroidery is beautiful, interesting, colorful, varied and brings a positive charge. In addition, they return to times when traditional clothes were hand-decorated, and women have given their freedom of creativity and showed true craftsmanship of craftsmanship.

The current research in the use of digitized forms of Bulgarian embroidered elements is related to their use with CAD systems, for the generation of programs for embroidery machines, digital collections [10,19,28]. Similar research has been done for embroidered elements of other nationalities - for Egyptian elements [10], where digitized elements are used to create a digital collection. Indian embroidered elements and their digitized forms were used to study consumer opinion, the results of which are presented in [19]. The author presents original and digitized Indian embroidered elements. As a criterion for evaluation of consumer opinion is used chi-square criterion.

Obtaining a digital version of the Bulgarian embroidered items is implemented with software tools presented in [10]. The algorithm for extracting an element in an image is used. Experimentally is found that for obtaining the contour of the image is appropriate to use S color component of the HSV color model. Then, according to the algorithm, the image is converted to binary and the contour and object parameters (the embroidered element) are obtained. Figure 4 presents stages of processing of floral element.



































The proportions of the elements are important in the design of clothing and instrument through which the product becomes attractive to the consumer. Apart from proportions, other important elements and principles are form, texture, color, dominance and balance.

Geometric descriptions of the elements are obtained with the "regionprops" function of the Matlab programming system. The function "regionprops" is very useful for measuring the properties of objects in a binary image. There is documentation examples and product examples showing how to do this. Type of measurement, specified as a character vector, comma-separated list of character vectors, cell array of character vectors, or "all". Property names are case-insensitive and can be abbreviated [21]. The coefficient of form kf is defined as the relationship between the square of the perimeter and the area of the object. The function is described in detail in [10,28]. Table 5 presents elements from Bulgarian national folk costumes and their geometrical descriptions.

Table 5.

Descriptive statistics of coefficients for all motifs

															
B1	B2	B3	B4	B5	B6	B7	B8								
kf	75,42	kf	27,05	kf	55,98	kf	51,88	kf	32,88	kf	59,43	kf	37,16	kf	19,67
ex	0,86	ex	0,71	ex	0,78	ex	0,69	ex	0,56	ex	0,48	ex	0,81	ex	0,73
or	-88,01	or	76,76	or	-85,71	or	27,92	or	-0,36	or	-59,48	or	2,60	or	87,43
so	0,70	so	0,77	so	0,48	so	0,61	so	0,80	so	0,79	so	0,80	so	0,88
ex	0,59	ex	0,49	ex	0,46	ex	0,52	ex	0,56	ex	0,68	ex	0,63	ex	0,73
															
B9	B10	B11	B12	B13	B14	B15	B16								
kf	124,7	kf	52,09	kf	288,10	kf	43,44	kf	73,20	kf	104,89	kf	107,00	kf	37,09

8															
ex	0,96	ex	0,58	ex	0,75	ex	0,46	ex	0,38	ex	0,60	ex	0,82	ex	0,35
or	64,62	or	78,26	or	0,95	or	62,38	or	-48,67	or	53,94	or	46,45	or	-7,70
so	0,50	so	0,80	so	0,48	so	0,60	so	0,67	so	0,62	so	0,53	so	0,79
ex	0,27	ex	0,57	ex	0,38	ex	0,53	ex	0,49	ex	0,49	ex	0,37	ex	0,58
															
B17		B18		B19		B20		B21		B22		B23		B24	
kf	67,01	kf	65,40	kf	60,20	kf	28,09	kf	60,63	kf	48,48	kf	39,07	kf	100,62
ex	0,60	ex	0,71	ex	0,82	ex	0,59	ex	0,66	ex	0,70	ex	0,68	ex	0,70
or	81,03	or	3,87	or	9,19	or	-37,47	or	-67,26	or	-86,40	or	2,39	or	41,21
so	0,52	so	0,84	so	0,71	so	0,83	so	0,73	so	0,74	so	0,85	so	0,66
ex	0,44	ex	0,69	ex	0,50	ex	0,72	ex	0,51	ex	0,58	ex	0,68	ex	0,52
															
B25		B26		B27		B28		B29		B30		B31		B32	
kf	60,46	kf	20,83	kf	61,99	kf	22,62	kf	56,55	kf	30,26	kf	104,42	kf	40,99
ex	0,68	ex	0,59	ex	0,92	ex	0,44	ex	0,83	ex	0,93	ex	0,82	ex	0,57
or	24,62	or	2,43	or	73,86	or	-73,98	or	-80,97	or	-8,33	or	46,66	or	-81,19
so	0,72	so	0,89	so	0,71	so	0,86	so	0,70	so	0,77	so	0,53	so	0,77
ex	0,53	ex	0,73	ex	0,52	ex	0,73	ex	0,50	ex	0,54	ex	0,37	ex	0,56
kf-coefficient of form; ex-eccentricity; or-orientation; so-solidity; ex-extent															

A survey was conducted on consumer opinion when choosing items of folk costumes. It is limited only within the Faculty of “Technics and Technologies, Yambol, of Thrakia University – Stara Zagora, Bulgaria. The lecturers involved in this study were randomly selected, regardless of gender, average success, and so on. The interviews were anonymous 79 of them (44 women and 35 men) from all technical fields. All lecturers participated voluntarily in the survey. They were informed of the purpose and use of the survey data collected.

Survey data were collected in May 2017. Table 6 presents the results of the survey.

Table 6.

Results from survey

Coefficient Diapason of change	Coefficient of form	Eccentricity	Orientation	Solidity	Extent
0-20%	11	12	20	16	17
20-40%	19	21	14	28	22
40-60%	23	21	17	22	17
60-80%	19	21	27	17	21
80-100%	28	25	22	17	23

The results of the correspondence analysis [26] are presented in figure 5. It can be seen from the figure that these symbols with a small value of solidity and higher coefficient of form are chosen. Elements are selected with intermediate values of the eccentricity,

orientation, extent coefficients. Selection of elements with high coefficient of form values is observed.

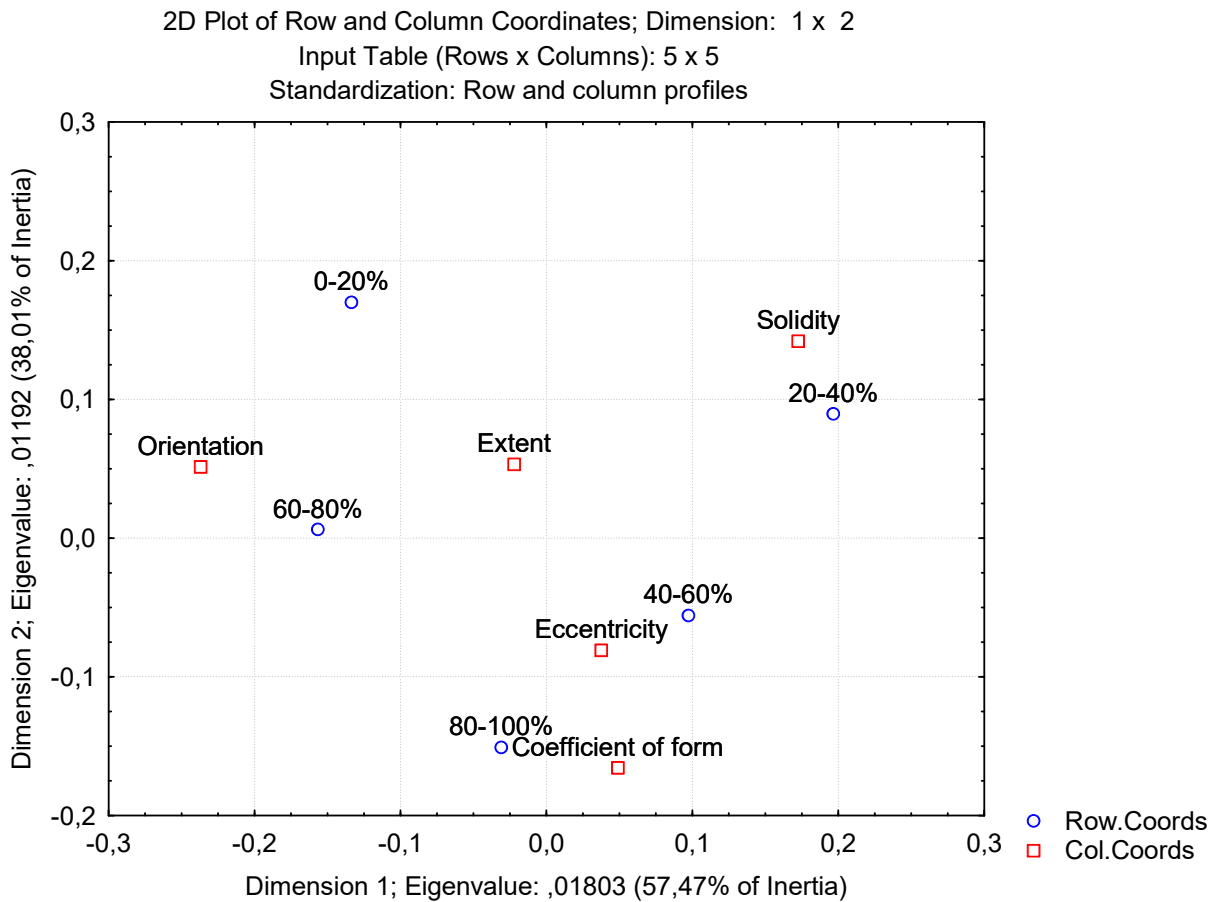


Fig.5. Results from correspondence analysis for coefficients of the symbols

An ABC analysis of the data obtained after a correspondence analysis was performed. In this case, a graphical representation of the results obtained is selected (Figure 6). Taken into consideration are the symbols within the group A. These are B1, B7, B11, B12.

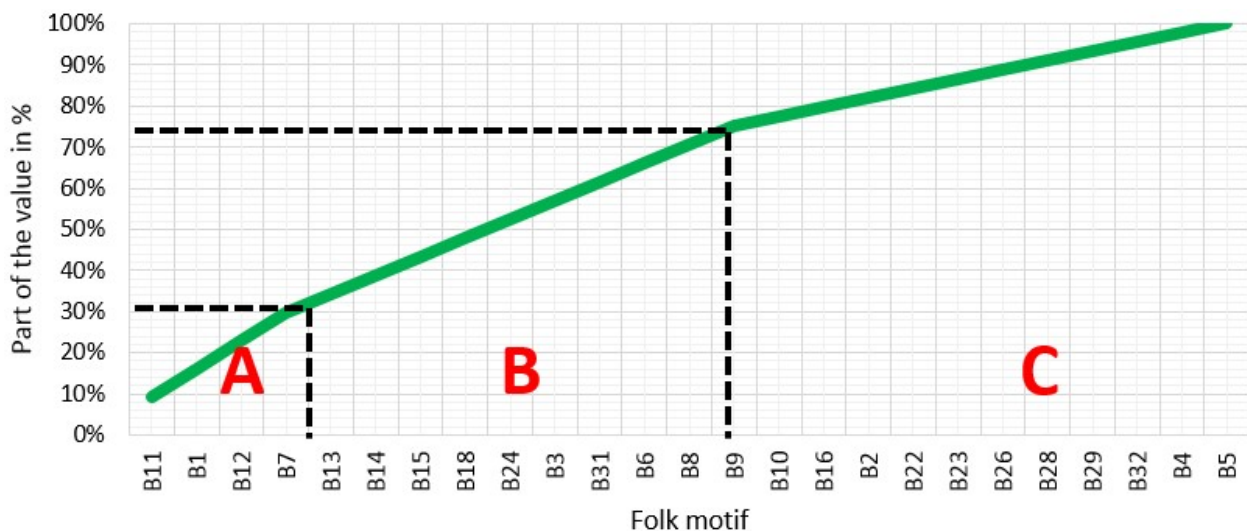


Fig.6. Results from ABC analysis

A modern clothing simulation was made using the online application Digital Fabrics [6], which can be used for textile and interior design. Figure 7 shows scarf and baby clothes as elements of modern fashion accessories and clothing.



The design of modern clothing and accessories affects the relationship between clothing of different ages and styles, their cultural ties. Particular attention is paid to designing modern women's and children's clothing inspired by historical epochs and styles in fashion. There is a new and interesting look at how to dress well. Developed contemporary clothing and accessories deserve attention with a starting point today and a non-profit tomorrow.

5. Conclusion

Folk embroidery is still very much of a living tradition in the rural areas of Gujarat. It inherited a rich culture of aesthetic sensibility and discipline of folklore. It is a colorful medium of sensitive and individual expression.

From the study can be concluded that the floral, geometrical, animal traditional motifs can be created in contemporary form.

Thus, the process of automation of conventional Bulgarian national embroidery motifs using Computer Aided Textile software developed in Matlab environment was quick, faster and user-friendly compared to manual designing that was laborious, time consuming and less flexible to edit, modify and/or replicate the design.

An investigation of Internet sites presenting and offering Bulgarian folk costumes showed that the favorites are those that have good structure and provide information to Bulgarian, English and other languages. The information provided by these sites is useful for modern designers who can apply elements of Bulgarian folk costumes to modern clothes.

In the survey of consumer opinion on the selection of elements of folk costumes it

was found that consumers prefer low-solidity elements and high value of the coefficient of the form.

Designing of clothes can be subject to the application of the results of the survey. They can be applied in the training of future specialists in the study of the silhouettes.

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