

# A Survey Study on the Basic Colors of the Sultanate of Yogyakarta

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**Abstract** Color terms vary from one culture to another. However, there is a universal tendency among cultures. It relates to what we called as basic colors. Although it is called a basic, these colors also differ amidst cultures. This paper presents our research on basic colors in Javanese culture. The research focuses to study how Javanese rulers set up and control the basic royal colors, and how Javanese people react to it by using terms to refer to. Color data in this research are collected by using ColorGrab software from the architecture and regalia of the Sultanate of Yogyakarta. To access data from the people, we used a questionnaire based on collected color data from the first data collection stage. In this research, we use mixed-method to correlate quantitative and qualitative data. The result shows that there are four basic colors in the Sultanate of Yogyakarta. Despite the differences in terminology, the survey result shows that people from the surrounding area of Yogyakarta indicating similar reactions and perceptions toward the basic royal colors of the Sultanate of Yogyakarta.

**Keywords:** *color terms, royal colors, Sultanate of Yogyakarta, survey study*

## 1. Introduction

Visually, human can differentiate one million different colors, much more than one's can mentioned [1]. Those colors are reduced into a small amount of categories which can be allocated in terms by speakers in a language community and may be used among them to converse on colors. In results, societies all over the world have differences in the amount of color categories that can be named, or in short, in terms of colors. The amount of such color categories range between 2 to 12 in almost some language in the world [2].

At least, there are few issues that have not been answered convincingly in study of colors in the field of linguistic research nowadays. First, the best way in characterizing terms that relatively important or significant between color vocabularies in a language. Second how to compare and differentiate color vocabularies among languages of the world. Third how the changes happened in color vocabularies as a result of changes in color categories. Fourth, how color manifestation from color vocabularies in a language and relation between the two of them. This research studies recent issues related to color categories in Javanese culture, specifically in special region of Yogyakarta area. Studies on color in Javanese culture can be considered limited. Such thing becomes more difficult when entering the field of language or linguistic study. Mainly focus on colors of batik [3], [4], food [5], and buildings [6]. However,

in those studies, nothing specifically discuss on the use of specific term on color vocabularies in Javanese language. This shows that there is hiatus of knowledge on characteristic of terms or color vocabularies in Javanese language. Although still related in one ethnic group and culture, colors in Javanese language is varied, for example, each Javanese cultural center, i.e, Kasunanan Surakarta, Kadipaten Pakualaman, and Kasultanan Yog yakarta have colors that become their own identity. As example, Keraton Pakualaman identify itself with light green, named *pare anom* [7]. Meanwhile, Keraton Kasunanan Surakarta is dominated by sky blue and white [8].

Meanwhile, in interview with Penghageng Tepas Dwarapura, KRT Jatiningrat, it is mentioned that there are four basic colors of Keraton Yogyakarta, which are *kuning gading*, *hijau*, *prada* (emas), and *merah hati* [9]. Those four colors are very easily found on buildings, regalia, and items belonging to Keraton Yogyakarta. Of course, aside from those colors, there are other colors. However, those four color categories dominate the coloring of buildings and regalia of Keraton Kesultanan Ngayogyakarta Hadiningrat.

The lack of studies on colors and its terms in Javanese culture that were conducted from linguistic science point of view became the first trigger in the execution of this research. Furthermore, in this study, there are two things that are studied in relation to colors in Javanese culture, specifically Yogyakarta, particularly Kasultanan Ngayogyakarta Hadiningrat or most commonly refer to Keraton Yogyakarta. Both are, first, how authority of Javanese culture, in this case, Keraton Yogyakarta, rules and manages basic colors of the sultanate; second, how the people respond to those basic colors of the sultanate through the use of terms. Such relation between colors and its terminology from the point of view of authority and its people become the focus of this research. Therefore, this research is the preliminary of further studies on color terms, specifically in Yogyakarta and Indonesia.

## 2. Research Method

This research uses mixed-method, specifically sequential explanatory. The use of this method is very helpful if the data that's being handled is qualitative and quantitative. In sequential explanatory method, collection and analysis of quantitative data are done first, then followed by collection and analysis of qualitative data. This is intended so that explanation and interpretation of quantitative research findings can be done with the aid of qualitative results [10]. Color data sample of Keraton Ngayogyakarta Hadiningrat was collected from field research inside the keraton compound. Color extraction was conducted through ColorGrab software which was able to identify and match 3D color data with its own color database. Color data then noted down and recorded in the form of HEX code (HTML) so that it can be used and displayed in the form of web for the need of data collection and presentation. Perceptual data of Javanese language speaker society and other data was taken through questionnaire, 20 color samples were used, which consist of 15 authentic color samples, and 5 additional color samples. Authentic color samples were taken from 3D buildings, regalia, and other keraton item colors. Meanwhile, additional five colors are colors that were taken from other color samples which are not connected to Keraton Yogyakarta.

Fifteen authentic colors were used in language test to examine color naming. Meanwhile, five additional colors were used to examine salience of color culture of Keraton Yogyakarta. Therefore, these five additional colors were not tested for its local term usage. For searching color terms for HEX code which was obtained from ColorGrab software, Adobe Photoshop

application and color searching application which was being developed, were used [11]. Next, data from the survey was tabulated and calculated using statistical approach and method to explain and confirm qualitative data findings. In studies of color and culture, there are at least two tests, which are behavioral and linguistic tests [12]. Meeting point of both tests was the frequency on the usage of specific color term, which can show psychological salience. In the research, color data samples which were obtained, were studied on its appearance frequency to determine its level of saliency towards the subject.

### 3. Results And Discussion

As previously mentioned, in interview with Pengageng Tepas Dwarapura (Head of Public Relation Division) Keraton Ngayogyakarta Hadiningrat, there are four colors that have become the identity of Keraton Ngayogyakarta, which are *abang getih sapi* (crimson red), *prada* (gold), *kuning gading* (ivory), and *ijo tuwa* (dark green) [9]. Although there are other ornaments, crimson red and gold could be found in the emblem of Kesultanan Yogyakarta *Praja Cihna*. Gold represents nobleness and majesty, meanwhile, crimson red shows dignity and courage [13]. Aside from that, both crimson red or gold were easy to be found on regalia, motifs, fashion accessories, etc. Ivory was easy to be found on walls, doors, window frames, etc. Meanwhile, dark green was easy to be found on pillars of keraton's pavilion. In reality, there are still other dominant colors other than those four colors, which is yellow. This color was normally found on clothes covering heirloom, motifs, and fashion accessories.

These five colors, which are *merah hati*, *emas*, *kuning gading*, *hijau tuwa*, and *kuning*, inventoried from regalia, buildings, and other material items belonging to Keraton Yogyakarta. From all these materials, 15 colors were obtained, which became stimulus on this research, which are #791E1D, #B5504B, #BE202A, #153126, #0F251C, #10261D, #A46D34, #C9954A, #DAA521, #FEC011, #FFCE2F, #FFE47E, #FFFDC A, #FFF7AF, and #EFD CAD, all of it represented variations from five dominant colors that became identity of Keraton Yogyakarta. On Table 1, survey of color naming based on 15 color samples can be seen. Such survey was conducted against people who mostly live or lived in Yogyakarta. On Table 1, was seen, generally, respondents can recognize colors that became stimulus and give names or terms that are quite distinctive. However, on color codes HEX #153126, #0F251C, and #10261D, respondents had difficulties in differentiating and marking with different terms. Everyone was using terms *ijo tuwo*, *ijo botol*, or *ireng keijo-ijoan*. However, naming in English seems to have problem as well, since only Celtic color terminologies are known.

**Table 1** Color Data Sample of the Sultanate of Yogyakarta

No	Hex Code	RGB	English Name	Local Name
1	#791E1D	121, 30, 29	crown of thorns	abang tuwa, abang ati, abang getih
2	#B5504B	181, 80, 75	chestnut	abang bata, abang tuwa
3	#BE202A	190, 32, 42	cardinal	Abang
4	#153126	21, 49, 38	Celtic	ijo tuwo, ijo botol, ijo lumut
5	#0F251C	15, 37, 28	Celtic	ijo tuwo, ijo botol, ijo peteng, ireng keijo-ijoan
6	#10261D	16, 38, 29	Celtic	ijo tuwo, ijo botol, ijo peteng, ireng keijo-ijoan
7	#A46D34	164, 109, 52	copper	coklat, emas swasa
8	#C9954A	201, 149, 74	tussock	coklat nom

No	Hex Code	RGB	English Name	Local Name
9	#DAA521	218, 165, 63	golden grass	kunir bosok, kuning tuwa
10	#FEC011	254, 192, 17	lightning yellow	Kuning
11	#FFCE2F	255, 206, 47	sunglow	Kuning
12	#FFE47E	255, 228, 126	kournikova	kuning, kuning nom
13	#FFFDCA	255, 253, 202	lemon chiffon	kuning gading, krem
14	#FFF7AF	255, 247, 175	buttermilk	kuning nom, krem
15	#EFDCAD	239, 220, 173	double colonial white	krem, coklat susu

For colors with code HEX #791E1D, #B5504B, and #BE202A, seemed to be easily differentiate and marked with different terminology significantly, which are *abang ati* dan *abang getih* (HEX #791E1D ‘crown of thorns’), *abang bata* (HEX #B5504B ‘chesnut’), and *abang* (#BE202A). moreover, word *abang tuwa* was also used either for HEX #791E1D or HEX #B5504B, however, it was also used more on the former with 6:1 ratio.

Colors with codes HEX #A46D34 and #C9954A are gold colors which were caught by the software from regalia and other keraton items. However, since the gold is not real gold, but suasa gold, [9] the color also has red element. In result, most respondents recognized it and called it *coklat* or *sogan*.

Meanwhile, colors with codes HEX #DAA521, #FEC011, and #FFCE2F were known as *kuning tuwa/bosok*, *kuning*, and *kuning* respectively. It appears that *lightning yellow* #FEC011 and *sunglow* #FFCE2F could not be marked with different terms by most respondents. Both were marked with the same word: *kuning*, without any attributes.

Furthermore, for the remaining colors, it seems that respondents tended to agree to marked *double colonial white* (#EFDCAD) with naming it *krem* (47,2%) and *coklat susu* (22,2%). Meanwhile, for the color *kournikova* (#FFE47E), *lemon chiffon* (#FFFDCA), and *buttermilk* (#FFF7AF), most respondents categorized it into *kuning* with variations *kuning*, *kuning gading*, and *kuning nom*. However, there also respondents that insert it into *krem* category, specifically *lemon chiffon* (25%) and *buttermilk* (22,2%). For *lemon chiffon*, a small amount of respondents also marked it with *putih balung*. This probably happened due to reason of the existence of elements of white in the color. In detail, naming distribution for these four colors can be seen on Table 2.

**Table 2** Distribution of Color Naming with Codes HEX #FFE47E, #FFFDCA, #FFF7AF, and #EFDCAD (In Percentage)

Color	HEX	Kuning	Kuning Nom	Kuning Gading	Krem	Coklat Susu	Putih Balung	Others
double colonial white	#EFDCAD	0.139	0	0	0.472	0.222	0	0.116
kournikova	#FFE47E	0.305	0.25	0.139	0.111	0	0	0.195
lemon chiffon	#FFFDCA	0.167	0.083	0.194	0.25	0	0.083	0.223
buttermilk	#FFF7AF	0.028	0.389	0.083	0.222	0	0.027	0.192

Based on the frequency of the biggest term usage, from Table 2, it can be explained that most respondents perceptually marked those four colors with tendencies such as this (as also written on Table 1).

*double colonial white > krem or coklat susu*  
*kournikova > kuning or kuning nom*  
*lemon chiffon > kuning or kuning gading*  
*buttermilk > kuning nom or krem*

Further, on survey conducted on Yogyakarta people, was also asked of colors that are not characteristics of Keraton Yogyakarta. From nine colors that were used for survey material, there are few colors, which tended not considered as part of keraton Yogyakarta's colors, as seen in Picture 1.

From Picture 1, it is visible that most respondents (> 0.50) unanimously refusing colors *cerulean*, *polo blue*, and *lucky point* as characteristic colors of Keraton Yogyakarta. These three colors are colors with elements of blue that are quite dominant. As we know that blue color is characteristic color of Keraton Kasunanan Surakarta [8]. Such color is easy to be found on buildings, and architecture of Keraton Kasunanan Surakarta other than, on the emblem of Kasunanan Surakarta, which is *Radya Laksana*.

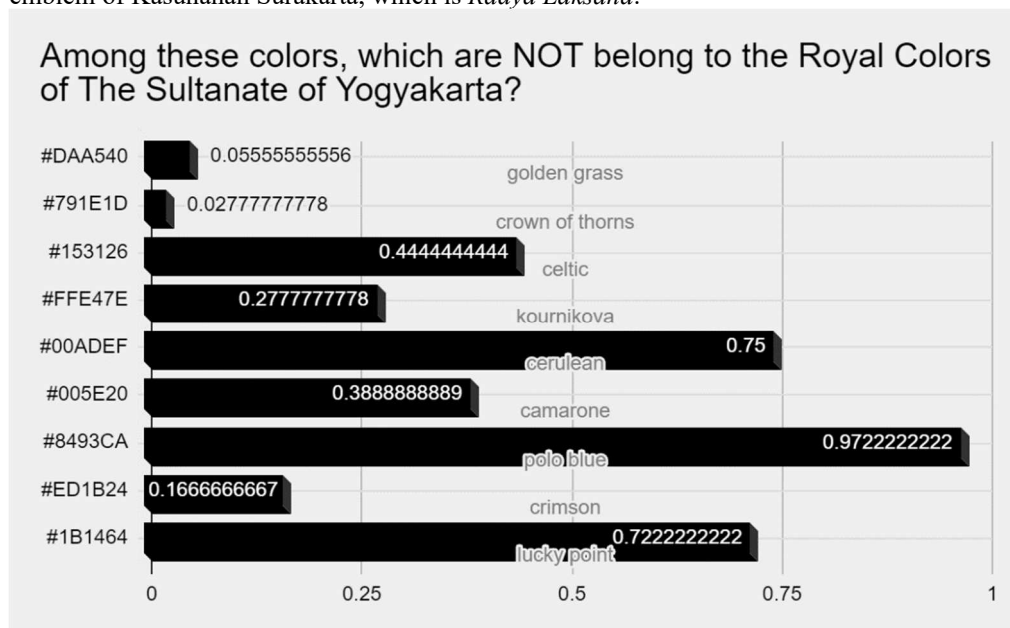


Fig 1 Result on Survey of Non Characteristic Colors of Keraton Yogyakarta

Meanwhile, on the same picture, could also be seen that most respondents, convincingly did not include *kunir bosok* (*golden grass*) and *abang getih sapi* (*crown of thorns*) as colors that are NOT characteristic to Keraton Yogyakarta. This means, respondents were sure that both colors are the most characteristic colors of Keraton Yogyakarta as could be seen on emblem *Praja Cihna*.

## 4. Conclusion

There are several findings that are obtained from this study. First, although officially mentioned that characteristic color of Keraton Yogyakarta consist of *abang getih sapi* (crimson red), *prada* (gold), *kuning gading* (ivory), and *ijo tuwa* (dark green), the result of field study showed that there are other dominant color, which is yellow. This yellow tended to be different from ivory that has a quite dominant element of white.

Second, in society, there are naming variations of color samples, such as, *copper* (#A46D34) marked as *coklat* and *emas swasa*. This happened as there are two possibilities. First, there are differences in mastery of color repertory in Javanese language. Second possibility, color stimulus that was given through online questionnaire, though attributed with HEX code, display on each monitor screen may be different from one device to another. In result, there was possibility, of changes in color shade.

Third, although different in color terminology that was used, people generally understood and could differentiate culture colors of Keraton Yogyakarta from other culture colors. This also confirmed that colors that can be recognized visually are more than colors that can be recognized linguistically. The amount of color terminology is incomparable to the amount of color categories that can be recognized by human.

Fourth, there needs to be recording of terms towards a certain color to find out the development and wealth of color terms in Javanese culture since the era of Jawa Kuna to the present. Therefore, this research is the preliminary of further studies on color terms, specifically in Yogyakarta and Indonesia.

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