

การจำแนกคุณภาพสีของทับทิมและไฟลินด้วยระบบสี CIELUV และ MUNSELL

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ศูนย์วิทยทรัพยากร

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COLOR QUALITY CLASSIFICATION OF RUBY AND BLUE SAPPHIRE BY CIELUV AND MUNSELL
COLOR SYSTEMS

Miss Pannapa Paotanom

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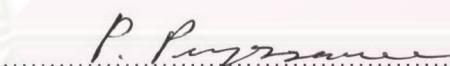
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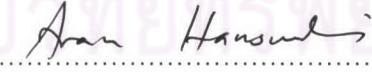
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(Associate Professor Aran Hansuebsai, Ph.D.)

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งานวิจัยนี้ศึกษาการจัดจำแนกคุณภาพสีของหับทิมและไฟลินด้วยระบบสีมันเซลล์ ซีไออีแอลยูวี และซีไออีแอลเอบี โดยนำนักอัญมณีศาสตร์มาทำการเทียบสีระหว่างพลอยกับแกบสีมันเซลล์ภายใต้สภาวะแวดล้อมที่กำหนด แล้วนำรหัสสีมันเซลล์แปลงเข้าสู่ระบบสีซีไออีแอลยูวีและซีไออีแอลเอบี หับทิมและไฟลินที่นำมาทดลองนี้ถูกกำหนดลำดับคุณภาพสีไว้ 6 ลำดับเรียงจากความเข้มถึงความสว่างโดยบริษัทค้าอัญมณีและเครื่องประดับชั้นนำ จากการทดลองเมื่อจำแนกตามลำดับความสว่างในไดอะแกรมซีไออีแอลยูวี สามารถระบุลำดับคุณภาพสีโดยพิจารณาระยะห่างระหว่างจุดพิกัดของพลอยและจุดพิกัดของแหล่งกำเนิดแสงซึ่งระยะห่างแสดงถึงความอิมิตตัฟฟ์ ระยะห่างมากคุณภาพสีสูง จากผลการทดลองสามารถระบุได้ดังนี้ สำหรับหับทิมพบลำดับความสว่างทั้งหมดมี 4 ลำดับดังนี้ ความสว่างที่ 20.54 ("Dark Red" และ "Deep Red") ความสว่างที่ 30.77 ("Deep Red") ความสว่างที่ 41.22 ("Deep Red") ความสว่างที่ 51.57 ("Vivid Red" และ "Pinkish Red") สำหรับไฟลินลำดับความสว่างทั้งหมดมี 2 ลำดับดังนี้ ความสว่างที่ 20.54 ("Dark Blue", "Deep Blue", "Vivid Blue", Strong Blue" และ "Purplish Blue") ความสว่างที่ 30.77 ("Vivid Blue" และ "Strong Blue") นอกจากนี้การหาความแตกต่างของกลุ่มลำดับคุณภาพสีสามารถพิจารณาจากไดอะแกรมซีไออีแอลเอบี โดยพิจารณาจากค่าเฉลี่ย L^* a^* b^* ของแต่ละกลุ่ม พบร่วมกันว่าสำหรับหับทิมตั้งแต่ลำดับ "Dark Red" ถึง "Pinkish Red" มีแนวโน้มความเข้มสีเพิ่มขึ้น สำหรับไฟลินตั้งแต่ลำดับ "Dark Blue" ถึง "Strong Blue" มีแนวโน้มความเข้มสีน้ำเงินเพิ่มขึ้น และลำดับ "Purplish Blue" และ "Greenish Blue" เริ่มมีสีเขียวผสมมากขึ้น

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PANNAPA PAOTANOM : COLOR QUALITY CLASSIFICATION OF RUBY AND BLUE SAPPHIRE BY CIELUV AND MUNSELL COLOR SYSTEMS. THESIS ADVISOR : ASSOCIATE PROFESSOR PONTAWEE PUNGRASSAMEE,M.S., 143 pp.
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This research studies the color quality classification of the ruby and blue sapphire by Munsell, CIELUV and CIELAB color systems. The gemologists evaluated the color characteristics of gemstones through the visual sensation by matching the gemstones with the Munsell's color chips under the controlled illumination. Then the HV/C values were converted to the CIELUV and CIELAB color systems. The studied rubies and blue sapphires sets were classified from dark to light into 6 groups by the leading gems and jewelry trading companies. From the u' v' diagrams at different lightness levels were classified the color quality by consideration of the distance between the light source and the gemstone coordinates, that shown the color saturation. The longer distance was the higher color quality. From the experiment, it was found that there were four lightness levels of the ruby, L^* 20.54 ("Dark Red" and "Deep Red"), L^* 30.77 ("Deep Red"), L^* 41.22 ("Deep Red"), L^* 51.71 ("Vivid Red" and "Pinkish Red") and two lightness levels of blue sapphire, L^* 20.54 ("Dark Blue", "Deep Blue", "Vivid Blue", "Strong Blue" and "Purplish Blue"), L^* 30.77 ("Vivid Blue" and "Strong Blue"). The color difference of the gemstone classification was considered from the $L^* a^* b^*$ diagram by the average values. The ruby had tendency to be more red from the "Dark Red" to "Pinkish Red" classifications. The blue sapphire had tendency to be more blue from the "Dark Blue" to "Strong Blue" classifications. And the green color was found in the "Purplish Blue" and "Greenish Blue" classifications.

Department..Photographic Science and Printing Technology..Student's signature.....Pannapa Paotanom.....

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