

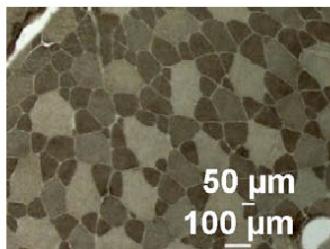


Keratikorn Poontawee (Autor)

# Flesh Qualities and Muscle Fiber Characteristics of Diploid and Triploid Rainbow Trouts (*Oncorhynchus mykiss*)

Keratikorn Poontawee

Flesh Qualities and Muscle Fiber Characteristics  
of Diploid and Triploid Rainbow Trouts  
(*Oncorhynchus mykiss*)



 Cuvillier Verlag Göttingen

<https://cuvillier.de/de/shop/publications/2080>

Copyright:

Cuvillier Verlag, Inhaberin Annette Jentzsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,  
Germany

Telefon: +49 (0)551 54724-0, E-Mail: [info@cuvillier.de](mailto:info@cuvillier.de), Website: <https://cuvillier.de>

## TABLE OF CONTENTS

	<b>Page</b>
<b>TABLE OF CONTENTS</b>	<b>i</b>
<b>LIST OF TABLES</b>	<b>iv</b>
<b>LIST OF APPENDIX TABLES</b>	<b>vii</b>
<b>LIST OF FIGURES</b>	<b>viii</b>
<b>LIST OF ABBREVIATIONS</b>	<b>x</b>
<b>1 INTRODUCTION</b>	<b>1</b>
<b>2 LITERATURE REVIEW</b>	<b>3</b>
2.1 Rainbow trout	3
2.2 Chromosome manipulation	8
2.3 The muscle	11
2.3.1 The structure of muscle	11
2.3.2 The control of muscle	15
2.4 The muscle of fish	23
2.5 The development of muscle	27
2.5.1 Muscle growth mechanisms	27
2.5.2 Relative contributions of hyperplasia and hypertrophy to post-embryonic muscle growth	32

	Page
2.6 Muscle fiber diversity	<b>35</b>
2.7 Meat qualities	<b>39</b>
2.7.1 pH value	<b>39</b>
2.7.2 Electric conductivity value	<b>41</b>
2.7.3 Water holding capacity	<b>42</b>
2.7.4 Color of meat	<b>43</b>
2.7.5 Shear force	<b>46</b>
2.7.6 Chemical analysis of fish flesh	<b>47</b>
3 MATERIALS AND METHODS	<b>49</b>
3.1 Experimental animal	<b>49</b>
3.2 Materials and methods	<b>49</b>
3.2.1 Slaughtering	<b>49</b>
3.2.2 Chemical analysis	<b>51</b>
3.2.3 Physical analysis	<b>52</b>
3.2.4 Muscle fiber analysis	<b>56</b>
3.3 Statistical analysis	<b>61</b>
4 RESULTS	<b>62</b>
4.1 Carcass and flesh qualities	<b>62</b>
4.2 Chemical composition of the fish muscle	<b>67</b>
4.3 Muscle fiber characteristic	<b>71</b>
4.3.1 White muscle fiber	<b>71</b>
4.3.2 Intermediate muscle fiber	<b>72</b>
4.3.3 Red muscle fiber	<b>75</b>

	Page
5 DISCUSSIONS	<b>81</b>
5.1 Carcass and flesh qualities	<b>81</b>
5.2 Chemical composition of rainbow trout fillets	<b>88</b>
5.3 Muscle fiber characteristics	<b>89</b>
6 CONCLUSIONS	<b>92</b>
7 SUMMARY	<b>93</b>
In English	<b>93</b>
In Deutsch	<b>94</b>
8 REFERENCES	<b>96</b>
9 APPENDIXES	<b>116</b>
10 ACKNOWLEDGEMENTS	<b>120</b>