

Content

Subject	page
Introduction	1
Review of literature	4
-Tilapia fish	4
- Bacterial diseases	5
-Yeast studies	6
- Yeast probiotic activities	10
Materials and methods	24
1. Materials	24
1.1. Fish	24
1.2. Aquaria	25
1.3. Media	25
1.4.Reagent, Chemicals, antibiotics and Stains	27
2- Methods	28
2.1. Yeast isolation	28
2.2. The identification of yeast	28
2.3. Antibacterial activity of yeasts in vitro	31
2.4. Sensitivity test using Antibigrams discs	31
2.5. Minimal inhibition concentration determination (MIC)	32
2.6. Safety of isolated yeasts to <i>Oreochromis niloticus</i>	32
2.7. Yeasts growths curve	۳۳
2.8. Yeast biomass Production	۳۳
2.9. Yeast dry weight	34
2.10. Yeasts probiotic activities	34
2.11. Statistical analysis	40
Results	41
-Yeast isolation	41
-morphological, physical and biochemical	۴۲
Characterization of isolated yeasts	
-Antibacterial activity of yeasts in vitro	52
-Sensitivity test using Antibigrams disc	55
-Minimal inhibition concentration determination (MIC)	۵۷
-The growth curve of yeasts	57
-Safety of yeast isolate	59

Subject	page
-Viability of live yeast	65
-Growth performance	66
-Organ-somatic index	70
-Heamatocrite value	72
-Respiratory burst activity by measuring nitroblue titrazolium activity (NBT)	74
-Lysozyme activity	77
-Serum bactericidal activity (SBT)	80
-Total bacterial count of fish intestine	85
-Challenge test	87
-Antibody titer	90
Discussion	92
Summary	104
Reference	107
Arabic summary	1-3

List of Tables

Table	page
-Table (1) Prevalence of isolated yeasts from freshwater fishes.	41
- Table (2) Physical and biochemical characters of the isolated yeast.	46
- Table (3) Inhibition zones diameter of <i>Saccaromyces castelli</i> , <i>Zygosaccaromyces</i> and <i>Rhodotorula minuta</i> against some pathogenic.	53
- Table (4) Inhibition zoon (mm) and sensitivity reaction of bacterial isolates to antibiogram.	56
-Table (5) The MIC of <i>Saccaromyces castelli</i> and <i>Rhodotorula minuta</i> (μg) against five test organisms (at 10^2).	57
-Table (6) The growth curve of yeasts / day using spectrophotometer (optical density).	58
-Table (7) Mortality rate of <i>O. niloticus</i> due to the experimental infection with <i>Saccaromyces castelli</i> , <i>Zygosaccaromyces</i> and <i>Rhodotorula minuta</i>	60
-Table (8) Viability of the probiotic after storage of the prepared feed refrigerator (4°C) and room temperature (25°C).	66
-Table (9) The effect of <i>Saccaromyces castelli</i> and <i>Rhodotorula minuta</i> supplemented diet on growth parameters in <i>O. niloticus</i> fed for 28 day.	68
-Table (10) The hepatosomatic and splenosomatic indices	70
-Table (11): Effect of yeasts supplemented diet on hematocrite value in <i>O. niloticus</i> at second and fourth week of feeding experiment.	73
- Table (12) Effect of yeasts supplemented diet on respiratory burst by using Nitro Blue Tetrazolium activity (NBT) mg/ml in <i>O. niloticus</i> at second and fourth week feeding experiment.	75
-Table (13) Serum lysozyme activity $\mu\text{g/ml}$ in <i>O. niloticus</i> due to feeding by yeasts supplemented diet at second and fourth week of experiment.	78

Table	page
-Table (14) Effect of yeasts supplemented diet on serum bactericidal activity against <i>Aeromonas sobria</i> at second and fourth week of feeding experiment of <i>O. niloticus</i> .	81
-Table (15): Effect of yeasts supplemented diet on Serum bactericidal activity of <i>O. niloticus</i> against <i>Pseudomonas fluorescens</i> at second and fourth week of experiment	83
-Table (16): Effect of yeast supplemented diet on total bacterial count of <i>O. niloticus</i> intestine at second and fourth week of feeding experiment.	85
-Table (17): Mortality rate and Relative level of protection in treated <i>O. niloticus</i> due to challenge test with <i>Aeromonas sobria</i> and <i>Pseudomonase fluorecence</i> .	88
-Table (18): Effect of yeasts supplemented diet on the antibody titre level due to <i>A. sobria</i> and <i>Ps. Fluorescens</i> infection.	90

List of Figure

Fig	page
Fig (1) <i>Saccaromyces castelli</i> budding, no filaments formation after 72 hours at 25 oC on Sabouraud' Dextrose agar medium.	47
Fig (٢) <i>Saccaromyces castelli</i> asci containing 1 or 2 rough, round ascospores after 48 hours at 25 °C on Gorodkowa agar.	47
Fig (3) <i>Zygosaccaromyces</i> budding after 72 hours at 25 °C on Sabouraud' Dextrose agar medium.	٤٨
Fig (4) <i>Zygosaccaromyces</i> asci formed by conjugation cells, each with 1 or 2 rough and round ascospores after 48 hours at 25 oC on Gorodkowa agar	٤٨
Fig (5) <i>Rhodotorula minuta</i> budding, no filaments growth after 72 hours at 25 °C on Sabouraud' Dextrose agar medium.	49
Fig (6) <i>Rhodotorula minuta</i> no sexual production after 48 hours at 25 °C on Gorodkowa agar	44
Fig (7) <i>candida</i> (1) budding, have filaments, elaborate pseudo hyphae after 72 hours at 25 °C on Sabouraud' Dextrose agar medium.	50
Fig (8) <i>candida</i> (1) no sexual production after 48 hours at 25 °C on Gorodkowa agar	50
Fig (9) <i>candida</i> (2) budding, had filaments, elaborated pseudo hyphae after 72 hours at 25 oC on Sabouraud' Dextrose agar medium.	51
Fig (10) <i>candida</i> (2) no sexual production after 48 hours at 25 oC on Gorodkowa agar.	51
Fig (11) antibacterial assay of <i>Saccaromyces castelli</i> , <i>Zygosaccaromyces</i> and <i>Rhodotorula minuta</i> against some pathogenic bacteria.	54
Fig (12) inhibition zones diameter (mm) of <i>Saccaromyce castelli</i> (S), <i>Zygosaccaromyces</i> species (Z) and <i>Rhodotorula minuta</i> (R) against some pathogenic bacteria	54
Fig (13) the growths curve of yeasts per day using spectroFigmeter.	59
Fig (14): Cumulative mortality (%) of <i>O. niloticus</i> due to the experimental infection with 0.2×10^5 yeasts cells/ml I/P.	61
Fig (15) shows <i>O.niloticus</i> infected experimentally with <i>rhodoturulla mint</i> I/P had fin rot and dark coloration with hemorrhage at the base of anal fin.	61

Fig (16) shows <i>O.niloticus</i> infected experimentally with <i>rhodoturulla minta</i> I/P had hemorrhage in the liver and congested kidney.	62
Fig (17) shows <i>O.niloticus</i> infected experimentally with <i>Zygosaccaromyces</i> I/P had dark coloration especially at peduncle region and hemorrhages at caudal fin .	62
Fig (18) shows <i>O.niloticus</i> infected experimentally with <i>Zygosaccaromyces</i> I/P had hemorrhages in the internal organs with petechi in liver.	63
Fig (19) shows <i>O.niloticus</i> infected experimentally with <i>saccaromyces castlii</i> I/P had not clinical signs.	63
Fig (20) shows <i>O.niloticus</i> infected experimentally with <i>saccaromyces castlii</i> I/P had pale liver.	64
Fig (21): shows <i>O. niloticus</i> not infected experimentally (control) had hemorrhages on lateral fin.	64
Fig (23): shows <i>O. niloticus</i> not infected experimentally (control) had the internal organs with pale liver and kidney.	65
Fig (24) The effect of <i>Saccaromyces castelli</i> and <i>Rhodotorula minuta</i> supplemented diet on growth parameters in <i>O. niloticus</i> fed for 28 day.	69
Fig (25) The splenosomatic indices	٧١
Fig (26) The hepatosomatic indices	72
- Fig (27): Effect of yeasts supplemented diet on heamatocrte value in <i>O. niloticus</i> at second and fourth week of feeding experiment.	74
- Fig (28) Effect of yeasts supplemented diet on respiratory burst by using Nitro Blue Tetrazolium activity (NBT) mg/ml in <i>O. niloticus</i> at second and fourth week feeding experiment.	76
-Fig (29) Serum lysozym activity µg/ml in <i>O. niloticus</i> due to feeding by probiotic supplemented diet at second and fourth week of experiment.	79
-Fig (30) Effect of yeasts supplemented diet on Serum bactericidal activity of <i>O. niloticus</i> against <i>Aeromonas sobria</i> at second and fourth week of experiment.	82
Fig (31): Effect of yeasts supplemented diet on Serum bactericidal activity of <i>O. niloticus</i> against <i>Pseudomonas fluorescens</i> at second and fourth week of experiment.	84

Fig (32): Effect of yeasts supplemented diet on total bacterial count of <i>O. niloticus</i> intestine at second and fourth week of feeding experiment.	86
Fig (33): Mortality rate and Relative level of protection in treated <i>O. niloticus</i> due to challenge test with <i>Aeromonas sobria</i> and <i>Pseudomonase fluorescences</i> .	89
Fig (34): Effect of yeasts supplemented diet on the antibody titre due to <i>A. sobria</i> and <i>Ps. fluorescens</i> infection.	91