~ RESULTS ~

1. GLYCOGEN

1.1 LIVER

1.1 (a) *Male Mynas*

Bank Myna (Table 1a, Figure 1A) and Brahminy Myna (Table 1b, Figure 1B)

In male Bank Myna, during pre-breeding phase, hepatic glycogen content was 2.292 ± 0.078 mg/ 100mg wet tissue, which dropped by 22% during the next phase of reproductive cycle *i.e.* breeding phase (1.865 ± 0.073; $P < 0.05$). Glycogen level further decreased significantly (1.446 ± 0.046) during post-breeding phase whereas, during non-breeding phase it increased by 11% to 1.630 ± 0.022 mg/100mg wet tissue ($P < 0.005$). In male Brahminy Myna, during pre – breeding phase, glycogen content was 2.14 ± 0.005 mg/100mg wet tissue which decreased significantly (1.062 ± 0.001) during the breeding phase and was maintained (1.096 ± 0.009) in the next phase (post – breeding). A minor rise was noted during non-breeding phase to 1.127 ± 0.003 mg/100mg wet tissue.

1.1 (b) *Female Mynas*

Bank Myna (Table 1a, Figure 1A) and Brahminy Myna (Table 1b, Figure 1B)

In female Bank Myna hepatic glycogen content was 1.123 ± 0.004 mg/100mg wet tissue during pre - breeding phase, which was

maintained during breeding (1.175 ± 0.004), post – breeding (1.018 ± 0.003) and non-breeding phases (1.031 ± 0.012). In the other species, liver had 2.160 ± 0.004 mg glycogen during pre - breeding phase, which exhibited a significant ($P<0.0005$) decrease from pre - breeding to breeding phase (1.067 ± 0.002), while it was maintained during remaining period of the reproductive cycle *i.e.* during post - breeding (1.065 ± 0.001) and non-breeding phases (1.129 ± 0.002).

1.2 INTESTINE

1.2 (a) *Male Mynas*

Bank Myna (Table 1a, Figure 1A) and Brahminy Myna (Table 1b, Figure 1B)

During the initial phase of the breeding cycle *i.e.* pre – breeding in male Bank Myna, the glycogen content in intestine was 0.220 ± 0.004 mg/100mg wet tissue. It was maintained during breeding phase (0.242 ± 0.003), whereas during post – breeding it declined significantly to 0.120 ± 0.001mg ($P<0.0005$) and was maintained at 0.128 ± 0.002 mg/100mg wet tissue, during the non-breeding phase. In Brahminy Myna male intestinal glycogen content exhibited a continuous non-significant decline from pre - breeding (0.172 ± 0.002) to breeding (0.152 ± 0.003) to post - breeding (0.137 ± 0.003; $P < 0.005$) phases. However, in the last phase (non-breeding) of the reproductive cycle glycogen level increased non-significantly to 0.140 ± 0.001 mg/100mg wet tissue.

1.3 (b) *Female Mynas*

Bank Myna (Table 1a, Figure 1A) and Brahminy Myna (Table 1b, Figure 1B).

In female Bank Myna, the intestinal glycogen content was 0.198 ± 0.011 mg/100mg wet tissue during the pre - breeding phase, which decreased significantly (0.156 ± 0.003) during breeding phase and further decreased during post – breeding phase (0.115 ± 0.008;$P<0.0005$). This was maintained at 0.119 ± 0.001 mg, during non-breeding phase. In Brahminy Myna females a somewhat similar trend to that of female Bank Myna in the intestinal glycogen content was observed. Though there was a significant decline in intestinal glycogen content from pre – breeding (0.176 ± 0.001) to breeding phase (0.149 ± 0.001;$P<0.0005$), from breeding phase to post – breeding phase, intestinal glycogen content was maintained (0.145 ± 0.001) whereas a non-significant increase was recorded during the non-breeding phase (0.161 ± 0.001). The decrease in intestinal glycogen content from pre - breeding to breeding in Bank Myna female was 26% whereas in Brahminy Myna it was 17%. The main difference was from breeding to post - breeding at 35% in Bank myna and only 2% in Brahminy Myna. Whereas the increase during non-breeding was non-significant at 3% in Bank Myna while significant at 9% in Brahminy Myna.

1.3 KIDNEY

1.3 (a) Male Mynas

Bank Myna (Table 1a, Figure 1A) and Brahminy Myna (Table 1b, Figure 1B)

In male Bank Myna, the renal glycogen content was 0.228 ± 0.006 mg/100mg wet tissue, during pre - breeding phase, which was maintained at 0.247 ± 0.003 mg during breeding season. After this there was a 28% decline in renal glycogen during post – breeding phase (0.109 ± 0.001;P<0.0005), which was maintained during non-breeding phase (0.107 ± 0.001). In the other species the renal glycogen content was high during pre - breeding phase (0.162 ± 0.001) which decreased significantly (P<0.0005) in the succeeding phases of the reproductive cycle *i.e.* breeding (0.143 ± 0.001) and post - breeding phases (0.120 ± 0.001). During non-breeding season renal glycogen level increased by 13% (0.139 ± 0.003).

1.4 (b) *Female Mynas*

Bank Myna (Table 1a, Figure 1A) and Brahminy Myna (Table 1b, Figure 1B).

In female Bank Myna glycogen content in kidney was at 0.180 ± 0.005 mg/100mg wet tissue during the pre - breeding phase which was maintained (0.205 ± 0.007) during breeding phase, dropped significantly during post – breeding phase (0.106 ± 0.002), and was

once again maintained (0.107 ± 0.001) during non-breeding phase. In female Brahminy Myna, high renal glycogen level was recorded during pre – breeding, at 0.165 ± 0.001 mg/100mg wet tissue, which was maintained (0.157 ± 0.001) during the breeding season and significantly decreased (0.135 ± 0.001) during post - breeding phase. During non-breeding season renal glycogen content increased non-significantly to 0.145 ± 0.001 mg in this species.

2. GLYCOGEN PHOSPHORYLASE

2.1 LIVER

2.1 (a) Male Mynas

Bank Myna (Table 2a, Figure 2A) and Brahminy Myna (Table 2b, Figure 2B)

During pre-breeding phase hepatic glycogen phosphorylase (GP) in male Bank Myna was significantly low compared to other phases of reproductive cycle at 20.562 ± 0.465 unit/mg protein. As the cycle progressed there was a steady increase from pre-breeding to breeding (23.640 ± 0.785; $P < 0.0005$) to post-breeding phase (26.287 ± 0.325; $P<0.0005$) while a significant depletion (24.933 ± 0.296) was noted during the non-breeding season of the reproductive cycle. In the other

species, Brahminy Myna GP was low in male birds during the pre-breeding phase (20.982 ± 0.446; P<0.0005) compared to breeding (25.947 ± 0.851) phase, which decreased significantly (18.462 ± 0.295; P<0.05) during post-breeding phase, and further declined (19.432 ± 0.809; P< 0.0005) during the non-breeding phase.

2.1 (b) Female Mynas

Bank Myna (Table 2a, Figure 2A) and Brahminy Myna (Table 2b, Figure 2B).

Hepatic GP in female bank myna showed a peak (26.518 ± 0.268; P< 0.0005) during pre-breeding phase, which depleted significantly during the breeding season (19.800 ± 0.349) but increased significantly (23.69 ±0.201) (P<0.0005) and declined during the non-breeding phase (20.546 ± 0.238). In Brahminy myna female hepatic GP was 23.428 ±0.692unit/mg proteins during the pre-breeding phase, which increased non-significantly (24.473 ± 1.528) during the next phase of reproductive cycle. During post-breeding phase enzyme activity decreased to 21.533 ± 0.632 unit /mg protein but significantly increased again during non-breeding phase to (P<0.005) 19.988 ± 0.307unit/mg protein.

2.2 INTESTINE

2.2 (a) Male Mynas

Bank Myna (Table 2a, Figure 2A) and Brahminy Myna (Table 2b, Figure 2A)

Male Bank myna showed higher GP activity (24.115 ± 0.565) in intestine during pre-breeding phase, which was maintained during breeding phase (23.677 ± 0.574). Thereafter there was a significant rise in enzyme level from breeding to post-breeding phase (28.380 ± 0.343) while decline (26.265 ± 0.228; $P<0.0005$) during the non-breeding phase. In male Brahminy myna, intestine exhibited low enzyme levels during pre-breeding phase (17.936 ± 0.388; $P<0.0005$), showed a steady significant rise to 22.336 ± 0.635 unit/protein breeding phase and then to 26.007 ± 0.523 unit/protein during post-breeding phase. While during non-breeding phase GP activity dropped significantly to 24.527 ± 0.307 unit/mg protein ($P<0.05$) compared to the post-breeding phase of reproductive cycle.

2.2 (b) Female Mynas

Bank Myna (Table 2a, Figure 2A) and Brahminy Myna (Table 2b, Figure 2B).

In the intestine of female Bank myna low GP activities were recorded during the pre - breeding (21.5 ± 0.447) and non - breeding (21.365 ± 0.471) phases of the reproductive cycle. GP level showed a

significant rise from pre - breeding to breeding (23.141 ±0.625) and further rise during post - breeding seasons (25.450 ± 0.378; P<0.005). In intestine of Brahminy myna, there was a gradual rise in phosphorylase activity from pre-breeding (22.720 ± 0.733) to breeding (24.293 ± 0.542) to post-breeding seasons (25.202 ± 1.015, P<0.05) and a significant decline (21.48 ± 0.616) during non-breeding season of the annual reproductive cycle.

2.3 KIDNEY

2.3 (a) Male Mynas

Bank Myna (Table 2a, Figure 2A) and Brahminy Myna (Table 2b, Figure 2B)

In Bank myna, kidney showed peak GP levels during the pre-breeding phase (18.800 ± 0.356) compared to other phases of reproductive cycle. This decreased significantly (14.225 ± 0.522; P< 0.0005) during breeding while increased non-significantly (16.298 ±0.426; P<0.05) during post-breeding phase and declined (13.045 ± 0.306; P<0.0005) again during the non-breeding phase. Renal GP in Brahminy myna was low during the pre-breeding phase (17.576 ± 0.278, P<0.0005) when compared to breeding (20.307 ± 0.371) and in post-breeding phases. The GP activity diminished significantly (18.763 ± 0.462) whereas during non-breeding phase (15.688 ± 0.603, P<0.0005) kidney exhibited minimal phosphorylase activity.

2.3(b) Female Mynas

Bank Myna (Table 2a, Figure 2A) and Brahminy Myna (Table 2b, Figure 2B).

During pre-breeding, the phosphorylase activity in kidney of female Bank myna was 21.367 ± 0.805 unit/mg protein, which was higher than breeding phase (18.821 ± 0.269;$P<0.05$). During post-breeding, the enzyme activity increased to 21.893 ± 0.329 unit/mg protein ($P<0.0005$), while it diminished again, significantly during non-breeding phase (19.136 ± 0.406). Kidney of female Brahminy Myna had low levels of GP during pre-breeding phase (21.892 ± 2.36), which showed a non-significant rise during breeding phase (23.148 ± 0.403) while a significant depletion from post-breeding (18.585 ± 0.400; $P<0.0005$) to non-breeding phases (16.421 ± 0.304, $P<0.0005$) of the breeding cycle.

3. GLUCOSE 6-PHOSPHATASE (G-6-Pase)

The G-6-Pase being present mainly in liver, only this tissue was used for the assay. G-6-Pase activity is expressed as μg of phosphate released/mg protein/15 minutes/40°C(unit/mg protein).

3.1 LIVER

3.1 (a) Male Mynas

Bank Myna (Table 3a, Figure 3A) and Brahminy Myna (Table 3b, Figure 3B)

In male Bank Myna the G-6-Pase level was minimum at 1.122 ± 0.079 unit/mg protein during the pre-breeding phase. As the breeding season started there was a significant rise from pre-breeding to breeding phase (2.783 ± 0.115), which increased further from breeding to post-breeding phase (4.224 ± 0.205; $P < 0.0005$) while dropped significantly to 3.232 ± 0.077 unit/mg protein during the non-breeding phase. In the other species *i.e.* male Brahminy myna, hepatic G-6-Pase level was 0.439 ± 0.177 unit/mg protein during the pre-breeding phase which also increased significantly (2.617 ± 0.168) during breeding phase while dropped down to 1.80 ± 0.048 unit/mg protein ($P < .0005$) during post-breeding phase and there was further decline during the non-breeding phase (1.643 ± 0.054) of the reproductive cycle.

3.2 (b) Female Mynas

Bank Myna (Table 3a, Figure 3A) and Brahminy Myna (Table 3b, Figure 3B)

In the females of Bank Myna G-6-Pase activity during pre-breeding phase was higher compared to male birds at 3.495 ± 0.155 units/mg protein, which decreased during breeding phase (1.830

±0.256; P<0.0005). However G-6-Pase exhibited a significant rise during the next phase (post-breeding) by reaching to peak level of the cycle at 5.240 ± 0.132 unit/mg protein. At the end of the cycle, during the non-breeding phase, hepatic G-6-Pase activity declined (4.202 ± 0.135; P<0.0005) compared to the post-breeding phase of the annual reproductive cycle but it was still non-significantly higher than the pre - breeding phase. In female Brahminy myna hepatic G-6-Pase activity recorded during the pre-breeding phase was 1.082 ± 0.080 unit/mg protein while a peak at 2.698 ± 0.134 unit/mg protein was recorded during breeding phase. Thereafter, G-6-Pase level diminished significantly to 1.593 ± 0.076 units/mg protein in the next phase *i.e.*, post-breeding and further declined non-significantly to 1.215 ± 0.065 units/mg protein during the non-breeding phase of the reproductive cycle.

4. SUCCINATE DEHYDROGENASE (SDH)

The SDH activity is expressed as μg of formazan formed /mg protein/30 minutes, 40° C (unit /mg protein).

4.1 LIVER

4.1 (a) Male Mynas

Bank Myna (Table 4a, Figure 4A) and Brahminy Myna (Table 4b, Figure 4B)

In Bank myna male hepatic SDH showed minimum activity 3.444 ± 0.435 unit /mg protein during pre-breeding phase, which showed a significant increase in subsequent reproductive seasons, breeding (4.862 ± 0.442) and post-breeding phases (6.298 ± 0.572; $P<0.05$) by 29% and 22% respectively. The SDH activity decreased during non-breeding phase to 5.408 ± 0.230 unit/mg protein. In male Brahminy myna low hepatic SDH activity (4.247 ± 0.322) was noted during pre-breeding phase, which peaked during breeding season (6.406 ± 1.199) but exhibited a progressive diminution from post-breeding (5.350 ± 0.198; $P<0.05$) to non-breeding phases (3.683 ± 0.129, $P<0.0005$) of the reproductive cycle.

4.1 (b) Female Mynas

Bank Myna (Table4a, Figure4a) and Brahminy Myna (Table4b, Figure 4b)

In female Bank myna hepatic SDH was at 4.951 ± 0.605 unit/mg protein during pre-breeding phase, which decreased significantly to 2.697 ± 0.223 ($P<0.005$) during breeding season. As the cycle progressed in the next phase *i.e.* post – breeding phase it

increased to 4.828 ± 0.342 unit /mg protein ($p < 0.005$) but again declined significantly to 2.965 ± 0.219 unit/mg protein during non-breeding phase. In Brahminy myna females the SDH activity was recorded at 4.987 ± 0.484 unit/mg protein during pre-breeding phase, which increased significantly (7.317 ± 0.460) during the succeeding phase (breeding), while declined to 3.053 ± 0.189 unit /mg protein ($P<0.0005$) during following phase (post-breeding). This was almost maintained (3.890 ± 0.377) during non-breeding season in Brahminy myna female.

4.2 INTESTINE

4.2 (a) Male Mynas

Bank Myna (Table 4a, Figure 4A) and Brahminy Myna (Table 4b, Figure 4B)

During pre-breeding season intestinal SDH in Bank Myna male was at 6.565 ± 0.163 unit / mg protein which dropped by 16% (5.632 ± 0.158; $P< 0.005$) during the following phase but peaked (7.240 ± 0.246; $P<0.0005$) during the post breeding phase and was subdued (2.560 ± 0.294) during the last phase *i.e.* non-breeding season. In the intestine of male Brahminy Myna SDH levels were lowest (5.830 ± 0.666) during pre-breeding phase as compared to rest of the phases of the reproductive cycle. SDH activity stepped up by 19% (7.284 ± 0.920) during the succeeding phase (breeding), which further

exhibited rise to 8.120 ± 0.119 unit/mg protein during post breeding phase and then there was diminution in enzyme level during non-breeding season (7.402 ± 0.209) in this species.

4.2 (b) Female Mynas

Bank Myna (Table 4a, Figure 4A) and Brahminy Myna (Table 4b, Figure 4B)

Intestinal SDH activity during pre – breeding season of female Bank myna was 5.593 ± 0.239 unit/mg protein which increased (6.556 ± 0.473; $P<0.05$) during the breeding season, reached at peak level during post breeding season (7.641 ± 0.456) and declined by 94% (3.934 ± 0.493) during the following non-breeding season of the cyclic phenomenon. The intestine in Brahminy Myna female had 5.682 ± 0.130 unit/mg protein of SDH activity during the pre breeding season, which exhibited a continuous rise by 30% (8.227 ± 0.219; $P<0.0005$) and 10% (9.133 ± 0.351; $P<0.05$) during the subsequent reproductive phases breeding and post breeding phases respectively. At the end during non-breeding season intestine of Brahminy myna female had 8.917 ± 0.185 unit/mg protein of SDH activity.

4.3 KIDNEY

4.3 (a) Male Mynas

Bank Myna (Table 4a, Figure 4A) and Brahminy Myna (Table 4b, Figure 4B)

During pre breeding phase renal SDH activity in male Bank myna was 1.795 ± 0.193 unit /mg protein which declined significantly during successive breeding season (1.057 ± 0.136) but showed a significant rise by 59% (2.558 ± 0.272; $P<0.0005$) during post – breeding phase but diminished again to 1.865 ± 0.213 unit/mg protein. ($P<0.05$) during non-breeding phase of the breeding cycle in Bank myna. Renal SDH level in Brahminy myna male was 5.196 ± 0.387 unit/mg protein during pre breeding phase which increased non significantly (5.680 ± 0.295) during breeding season while diminished significantly to 2.813 ± 0.263 unit/mg protein ($P<0.0005$) during the subsequent post - breeding phase and to 2.375 ± 0.085 unit/mg protein during the non-breeding phase of the reproductive cycle of Brahminy myna.

4.3 (b) Female Mynas

Bank Myna (Table 4a, Figure 4A) and Brahminy Myna (Table 4b, Figure 4B)

SDH level in kidney of female Bank myna was 5.913 ± 0.427 unit/mg protein during pre – breeding phase, which decreased

significantly (2.630 ± 0.501) during breeding phase. During the following post – breeding phase enzyme level raised to 3.794 ± 0.576 unit /mg protein while during non-breeding season renal SDH level dropped to 2.350 ± 0.172 unit /mg protein ($P<0.05$) in Bank myna. In Brahminy myna female renal SDH was 4.595 ± 0.293 unit/mg protein during the pre-breeding season which exhibited a significant rise during breeding phase (6.738 ± 0.213), whereas significant drop by 19% (5.657 ± 0.347; $P<0.05$) during the post breeding phase of the breeding cycle .The non breeding season SDH activity in kidney of Brahminy myna was maintained at 5.250 ± 0.081 unit/mg protein in renal SDH activity.

5. ADINOSINE TRIPHOSPHATASE (ATPase)

The ATPase activity is expressed as μg of phosphate released /mg protein /10 minutes, 40° C (unit /mg protein).

5.1 LIVER

5.1 (a) Male Myna

Bank Myna (Table 5a, Figure 5A) and Brahminy Myna (Table 5b, Figure 5B)

ATPase activity in the liver of male Bank myna during pre-breeding and breeding phases of the reproductive cycle were

maintained at 143.617 ± 0.287 and 145.258 ± 0.351 unit /mg protein respectively, which increased significantly during post-breeding phase to 147.640 ± 0.207 unit/mg protein while declined significantly to 141.413 ± 0.617 unit /mg protein (P<0.005). During non-breeding phase the hepatic ATPase in Brahminy myna male was recorded at 142.783 ± 0.483 unit /mg protein. The enzyme activity increased significantly to 151.520 ± 0.399 unit/mg protein during breeding phase but reduced by 8% to140.240 ± 0.525 unit /mg protein during the post-breeding season. During the non-breeding phase there was a non-significant rise in enzyme activity to 141.497 ± 0.401 unit /mg protein (P<0.05).

5.1 (b) Female Mynas

Bank Myna (Table 5a, Figure 5A) and Brahminy Myna (Table 5b, Figure 5B)

The hepatic ATPase activity in female Bank myna showed significant oscillations over the four phases of breeding cycle. During the pre-breeding phase hepatic ATPase activity was 145.325 ± 0.325 unit/mg protein which dropped significantly (p<0.0005) to 140.982 ± 0.403 unit/mg protein during the breeding phase and increased significantly (145.043 ± 0.429) during the next phase (post-breeding) and dropped again to 141.282 ± 0.453 unit/mg protein during non-breeding phase of the reproductive cycle. In the female Brahminy myna also oscillations were noted but these were of different

magnitude. During pre-breeding phase, liver showed 143.310 ± 0.641 unit/mg protein of ATPase activity which increased significantly (153.083 ± 0.410) during the breeding season but after significant decrease (141.388 ± 0.515; P<0.0005) during post - breeding season was almost maintained at 142.317 ± 0.530 unit/mg protein during non-breeding phase of the cyclic reproductive process.

5.2 INTESTINE

5.2 (a) Male Mynas

Bank Myna (Table 5a, Figure5A) and Brahminy Myna (Table 5b, Figure 5B)

In male Bank mynas intestinal ATPase was recorded at 144.790 ± 0.410 unit /mg protein during pre-breeding phase. In the subsequent phase (breeding) there was a decline (143.812 ±0.281; P<0.05) in ATPase activity but it intensified significantly (147.992 ± 0.423; P < 0.0005) during the post-breeding phase while dropped down to 144.462 ± 0.524 unit/mg protein during non-breeding phase. In the males of other species *i.e.* the Brahminy myna the intestinal ATPase level was at 148.747 ± 0.257 unit/mg protein (P<0.05) during pre - breeding phase which increased to (154.447 ± 0.343) during next progressive breeding phase while it stepped up non-significantly to 155.245 ± 0.413 unit/mg protein during post-breeding phase and decreased significantly to 147.318 ± 0.410 unit/mg protein during non-

breeding phase, which was almost equal to that of the pre - breeding phase.

5.2 (b) Female Mynas

Bank Myna (Table 5a, Figure5A) and Brahminy Myna (Table 5b, Figure 5B)

Intestinal ATPase in female Bank myna was 147.312 ± 0.792 unit /mg protein during pre-breeding phase which increased non-significantly to 149.992 ± 0.346 unit /mg protein during the succeeding breeding phase and was maintained during post breeding phase (150.543 ± 0.348) while it dropped significantly to 145.523 ± 0.232 unit/mg protein ($P<0.0005$) during non-breeding phase. In female Brahminy myna intestinal ATPase activity was at 149.503 ± 0.425 unit /mg protein during pre-breeding phase. Thereafter, there was a significant rise (157.998 ± 0.701) during breeding phase, which was maintained till post - breeding phase at 157.007 ± 0.406 unit /mg protein but dropped significantly (151.177 ± 0.388) during non-breeding phase of the reproductive cycle.

5.3 KIDNEY

5.3 (a) Male Mynas

Bank Myna (Table 5a, Figure 5A) and Brahminy Myna (Table 5b, Figure 5B)

The ATPase activity in the kidney of Bank myna males was at 134.493 ± 0.307 units /mg protein during pre-breeding and showed a significant decrease to 131.537 ± 0.360 units/mg protein ($P<0.0005$) during the subsequent phase (breeding). Thereafter, there was an increase in ATPase activity by 3% (135.010 ± 0.625) during post-breeding phase followed by a drop (133.963 ± 0.322) during the non-breeding phase. In male Brahminy mynas during pre-breeding phase the renal ATPase was at 123.552 ± 0.475 unit/mg protein ($P<0.0005$), which increased significantly during breeding phase (130.540 ± 0.480). Thereafter, there was a progressive reduction in ATPase level to post-breeding phase (121.467 ± 0.509) followed by non-breeding phase (119.705 ± 0.372, $P<0.05$) of the reproductive cycle.

5.3 (b) Female Mynas

Bank Myna (Table 5a, Figure 5A) and Brahminy Myna (Table 5b, Figure 5B)

Renal ATPase in Bank myna females was at 146.523 ± 0.367 unit /mg protein, during pre-breeding season, which showed a decline to 141.652 ± 0.302 unit /mg protein during breeding phase but showed a highly significant increase (144.480 ± 0.299; $P<0.0005$)

during the post-breeding phase and during non-breeding phase enzyme level declined significantly ($P<0.0005$) to 139.928 ± 0.322 units /mg protein. In female Brahminy myna, during pre-breeding phase, the renal ATPase activity was at 125.253 ± 0.303 unit/mg protein which escalated to 133.368 ± 0.835 units /mg protein ($P<0.0005$) during breeding phase and showed a significant stepwise decrease in the succeeding reproductive phases at 123.297 ± 0.550 unit/mg protein during post-breeding and 121.668 ± 0.409 unit /mg protein ($P< 0.05$) during non-breeding phase of the cyclic reproductive phenomenon.

6. ACID PHOSPHATASE

The AcPase activity is expressed as μmoles of P-nitrophenol released/mg protein/30 minutes, 40° C (unit /mg protein). Due to unavoidable circumstances the AcPase of the three tissues studied could not be estimated in Bank myna during pre - breeding season.

6.1 LIVER

6.1 (a) Male Mynas

Bank Myna (Table 6a, Figure 6A) and Brahminy Myna (Table 6b, Figure 6B)

Hepatic Acid Phosphatase (AcPase) in Bank myna males showed low activity (0.639 ± 0.007) unit/mg protein during pre-breeding

phase. Thereafter there was significant increase in AcPase activity during subsequent reproductive seasons *i.e.* breeding (1.091 ± 0.037) and post-breeding (1.716 ± 0.064; P<0.0005) by 41% and 36% respectively. However, during non-breeding phase a significant decrease compared to post - breeding was noted in AcPase activity at 1.209 ± 0.052 unit /mg protein. In male Brahminy myna hepatic AcPase was higher than the liver of male Bank myna but low (1.547 ± 0.095) compared to breeding season during pre-breeding phase but peaked during breeding season (3.178 ± 0.195; P<0.0005) and progressively exhibited diminution from post-breeding (1.818 ± 0.166; P<0.0005) to non-breeding (1.190 ± 0.062; P<0.005) phases of the reproductive cycle.

6.1 (b) Female Mynas

Bank Myna (Table 6a, Figure 6A) and Brahminy Myna (Table 6b, Figure 6B)

Hepatic AcPase in female Bank myna during breeding phase was 0.760 ± 0.053 unit /mg protein, which increased significantly to 3.394 ± 0.059 unit /mg protein (P<0.0005) during post-breeding phase. While the AcPase activity declined significantly to 1.516 ± 0.179 unit /mg protein during non-breeding phase of the cyclic process of reproduction. Brahminy myna females had 1.614 ± 0.025 unit /mg protein AcPase during pre-breeding season that increased significantly (2.077 ± 0.100) during breeding phase, but declined to 1.01 ± 0.021

unit /mg protein (P<0.0005) during post-breeding phase. AcPase showed a rise again during non-breeding season by 31% (1.466 ± 0.156).

6.2 INTESTINE

6.2 (a) Male Mynas

Bank Myna (Table 6a, Figure 6A) and Brahminy Myna (Table 6b, Figure 6B)

During pre-breeding season, intestinal AcPase in Bank myna male was 4.671 ± 0.246 unit / mg protein, which dropped by 40% (3.324 ± 0.007; P< 0.0005) during the following phase while peaked by 71% during post breeding phase (11.29 ± 0.367; P<0.0005) and declined again significantly by 68% (6.71 ± 0.294; P<0.0005) during the last phase of the breeding cycle. In the intestine of male Brahminy myna AcPase level was lowest (1.902 ± 0.126) during pre-breeding phase compared to rest of the phases of the reproductive cycle. AcPase activity stepped up during the successive phases (breeding) by 25% (2.547 ± 0.181; P<0.05) and post breeding phase by 36% (3.999 ± 0.564; P<0.05). Thereafter there was a decline in enzyme level by 21% during non-breeding phase (3.286 ± 0.217) in this species.

6.2 (b) Female Mynas

Bank Myna (Table 6a, Figure 6A) and Brahminy Myna (Table 6b, Figure 6B)

Intestinal AcPase activity during breeding season of Bank myna female was 7.008 ± 0.117 unit/mg protein. This increased significantly during post breeding phase (10.693 ± 0.594; $P<0.005$), but declined by 88% (5.675 ± 0.536) during the following non-breeding season of the cyclic phenomena. As said earlier data during pre - breeding phase is not available. In other species of Brahminy myna female intestine had 3.618 ± 0.207 unit/mg protein AcPase activity during pre breeding season. Thereafter there was a continuous rise by 33% and 13% in enzyme level during the subsequent reproductive phases *i.e.* breeding (5.421 ± 0.257; $P<0.005$) and post - breeding phase (6.284 ± 0.228; $P<0.0005$) respectively. During the non-breeding season intestine of female Brahminy myna exhibited lowest (2.782 ± 0.048) AcPase activity as compared to the rest of the phases.

6.3 KIDNEY

6.3 (a) Male Mynas

Bank Myna (Table 6a, Figure 6A) and Brahminy Myna (Table 6b, Figure 6B)

Peak in renal AcPase activity of male Bank myna was recorded during pre breeding phase at 6.846 ± 0.402 unit /mg protein, which

decreased significantly during successive season of reproduction *i.e.* breeding season (3.187 ± 0.092) but showed a rise by 29% (4.537 ± 0.263; P<0.0005) during post - breeding season and a significant drop to 1.187 ± 0.093 unit /mg protein (P<0.0005) during non breeding phase of their breeding cycle. Renal AcPase level in Brahminy myna male was recorded at 1.350 ± 0.076 unit /mg protein during pre breeding season, which increased significantly (1.939 ± 0.098) during the breeding season but diminished during the subsequent phases by 26% (1.535 ± 0.109; P<0.05) during post – breeding phase and 52% (1.007 ± 0.054) during the non-breeding phase of Brahminy myna.

6.3 (b) Female Mynas

Bank Myna (Table 6a, Figure 6A) and Brahminy Myna (Table 6b, Figure 6B)

AcPase level in kidney of female Bank myna was 5.836 ± 0.031 unit /mg protein during breeding season, which increased significantly (7.987 ± 0.402; P<0.0005) during post breeding phase. During non-breeding season renal AcPase level dropped to 6.957 ± 0.184 unit/mg protein (P<0.05). The data for pre - breeding phase is lacking. In Brahminy myna females renal AcPase was 3.228 ± 0.247 unit/mg protein during the pre-breeding season which was maintained during breeding phase (3.649 ± 0.246), and decreased significantly by 88% (1.940 ± 0.075; P<0.0005) during the post-breeding phase of the

breeding cycle. Lowest (1.565 ± 0.036) renal AcPase activity in this species was noted during non-breeding season.

7. ALKALINE PHOSPHATASE

The AlkPase activity is expressed as μmoles of P-nitrophenol released /mg protein /30 minutes, 40° C (unit /mg protein). As stated earlier AlkPase activity too, of the three tissues studied could not be estimated in Bank myna during pre - breeding season.

7.1 LIVER

7.1 (a) Male Mynas

Bank Myna (Table 7a, Figure 7A) and Brahminy Myna (Table 7b, Figure 7B)

Alkaline phosphatase (AlkPase) activity in the liver of male Bank myna during pre-breeding phase of reproductive cycle was 0.084 ± 0.004 unit /mg protein which increased by 32% (0.124 ± 0.01, $P<0.005$) during the breeding season and increased further significantly during post-breeding phase (0.517 ± 0.012; $P<0.0005$). During non-breeding phase there was a significant fall in AlkPase

activity to 0.198 ± 0.011 unit /mg protein (P<0.0005). In Brahminy myna male hepatic AlkPase activity was recorded at 0.254 ± 0.008 unit /mg protein during pre - breeding phase which increased significantly to 0.422 ± 0.029 unit /mg protein during breeding season but decreased by 61% (0.262 ± 0.019; P<0.0005) during the post-breeding season. During non-breeding phase there was a further decrease in enzyme activity to 0.026 ± 0.002 unit/mg protein (P<0.0005).

7.1 (b) Female Mynas

Bank Myna (Table 7a, Figure 7A) and Brahminy Myna (Table 7b, Figure 7B)

The hepatic AlkPase activity in female Bank myna was 0.147 ± 0.020 unit/mg protein during breeding phase. Thereafter there was a significant increase (1.273 ± 0.119) during the next (post-breeding) phase, which dropped to 0.255 ± 0.032unit /mg protein during non-breeding phase of the reproductive cycle. Liver of female Brahminy myna showed 0.280 ± 0.007 unit/mg protein of AlkPase activity during pre - breeding phase. During the following phase there was a significant rise (0.513 ± 0.045) in the levels of AlkPase while a significant decrease (0.211 ± 0.034; P<0.0005) during the post - breeding phase and further drop to 0.090 ± 0.012 unit /mg protein during non-breeding phase of the cyclic reproductive process.

7.2 INTESTINE

7.2 (a) Male Mynas

Bank Myna (Table 7a, Figure 7A) and Brahminy Myna (Table 7b, Figure 7B)

Intestinal AlkPase in male Bank myna was recorded at 1.536 ± 0.021 unit/mg protein during the pre-breeding phase that declined during the following phase (breeding) by 42% (1.079 ± 0.064; $P<0.0005$) but intensified significantly (3.501 ± 0.303) during post-breeding phase. During non-breeding, the enzyme level dropped again by 19% only (2.922 ± 0.159). In the males of Brahminy myna the intestinal AlkPase levels was 1.091 ± 0.010 unit/mg protein ($P<0.0005$) during pre-breeding season. In the next progressive breeding phase there was 29% rise (1.540 ± 0.121, $P<0.0005$) in AlkPase activity, which stepped up further to 2.293 ± 0.205 unit/mg protein ($P<0.005$) during post-breeding phase. During non-breeding season there was a non-significant decrease (2.150 ± 0.076) in AlkPase.

7.2 (b) Female Mynas

Bank Myna (Table 7a, Figure 7A) and Brahminy Myna (Table7b, Figure 7B)

In female Bank myna intestinal AlkPase was at 4.248 ± 0.226 unit/mg protein during breeding season, which increased significantly (5.929 ± 0.459) during the succeeding post-breeding phase but dropped to 2.375 ± 0.172 unit/mg protein ($P<0.0005$) during non-breeding phase of the cyclic phenomenon. In the other species female Brahminy myna, 1.288 ± 0.123 unit/mg protein AlkPase activity was noted in the intestine during the pre-breeding phase. Thereafter there was a significant rise in AlkPase activity from pre-breeding to breeding (2.262 ± 0.163) that further amplified (3.050 ± 0.175; $P<0.0005$) during the subsequent phase (post-breeding) of the breeding cycle. A significant decline (1.017 ± 0.060; $P<0.0005$) was noted at the end of cyclic reproductive phenomenon (non-breeding phase).

7.3 KIDNEY

7.3 (a) Male Mynas

Bank Myna (Table7a, Figure7a) and Brahminy Myna (Table7b, Figure7b)

The AlkPase activity in kidney of Bank myna males showed oscillations over the reproductive cycle with 1.946 ± 0.074 units/mg

protein AlkPase activity during pre-breeding phase which showed a significant decrease (0.943 ± 0.055; P<0.0005) during the subsequent breeding phase but a significant increase (42%) (1.632 ± 0.118; P<0.0005) during post-breeding phase followed by significant decline (0.069 ± 0.006; P<0.0005) during the non-breeding phase that was minimum compared to all other phases of reproductive cycle. In Brahminy myna during pre-breeding phase, the renal AlkPase in male birds was at 0.318 ± 0.011 unit/mg protein that exhibited a significant increase during breeding (0.714 ± 0.046; P<0.0005) phase but a progressive decline from post-breeding (0.591 ± 0.171) to non-breeding phases (0.252 ± 0.007, P<0.05) of the reproductive cycle.

7.3 (b) Female Mynas

Bank Myna (Table 7a, Figure 7A) and Brahminy Myna (Table 7b, Figure 7B)

Renal AlkPase in Bank myna males was at 0.114 ± 0.007 unit/mg protein during the breeding season, which showed an 89% increase (1.139 ± 0.017; P<0.0005) during the next progressive phase of the reproductive cycle *i.e.*, post-breeding phase. During non-breeding phase, enzyme declined (P<0.05) to 0.880 ± 0.089 units/mg protein. In female Brahminy myna the renal AlkPase activity was 0.760 ± 0.012 unit/mg protein during pre-breeding phase. The activity escalated to 1.423 ± 0.285 units/mg protein (P<0.0005) during breeding phase but showed a significant decrease (0.523 ± 0.031;

P<0.005) during the succeeding reproductive phase (post-breeding) and continued to show further decline (0.215 ± 0.004; P< 0.0005) during non-breeding phase.

8. PROTEIN

8.1 LIVER

8.1 (a) Male Mynas

Bank Myna (Table 8a, Figure 8A) and Brahminy Myna (Table 8b, Figure 8B)

In the Bank Myna males, the hepatic protein content during the pre-breeding phase, was 30.449 ± 0.414 mg /100 mg wet tissue which rose significantly (35.828 ± 0.339) during the following breeding season. Thereafter there was 17% (30.383 ± 0.214; P< 0.0005) decrease during the post-breeding phase, while 6% increase (32.327 ± 0.361) during non-breeding phase. In Brahminy, Myna hepatic protein was at 28.679 ± 0.371 mg /100 mg wet tissue during pre-breeding phase, which significantly increased to 32.708 ± 0.743 mg /100 mg wet tissue during breeding season and was recorded significantly low at 25.278 ± 0.375 mg during post-breeding season while higher by 8% (27.76 ± 0.663; P<0.005) during the next phase *i.e.* non-breeding phase of the reproductive cycle.

8.1 (b) Female Mynas

Bank Myna (Table 8a, Figure 8A) and Brahminy Myna (Table 8b, Figure 8B)

Hepatic proteins in Bank myna females were at 31.065 ± 0.314 mg /100 mg wet tissue during pre-breeding phase. There was a significant rise (34.340 ± 0.396) during breeding phase while a decline by 6% (32.33 ± 0.289; $P<0.005$) during the following post-breeding phase but an increase to 35.338 ± 0.249 mg /100 mg wet tissue during non-breeding phase, which was significantly high from post-breeding phase. In Brahminy myna hepatic protein content was at 28.802 ± 1.701 mg /100 mg wet tissue during the pre-breeding season, which showed a significant rise during breeding season (35.630 ± 0.832; $P<0.005$). During post-breeding phase the hepatic proteins diminished significantly by 52% (23.442 ± 1.177; $P<0.0005$) and rose again by 7% (25.291 ± 0.750) during non-breeding phase.

8.2 INTESTINE

8.2 (a) Male Mynas

Bank Myna (Table 8a, Figure 8A) and Brahminy Myna (Table 8b, Figur 8B)

Intestinal protein content was minimum (27.427 ± 0.599) during pre-breeding phase in male Bank myna, which increased significantly

to 30.272 ± 0.482 mg /100 mg wet tissue (P<0.005) during breeding phase. During the next phase, *i.e.* post-breeding phase, the protein content in intestine declined by 7% (28.237 ± 0.217) and it increased again to 31.300 ± 0.316 mg /100 mg wet tissue during the non-breeding season of the reproductive cycle. In male Brahminy myna, protein content of intestine was 28.642 ± 0.399 mg /100 mg wet tissue during pre-breeding phase which was maintained at 27.190 ± 0.624 mg /100 mg wet tissue during next phase *i.e.* the breeding phase of the cyclic process. During post-breeding season, there was diminution by 6% (25.515 ± 0.323; P<0.05), which increased significantly to 27.832 ± 0.427 mg /100 mg wet tissue in the subsequent phase (non-breeding) of the reproductive cycle.

8.2 (b) Female Mynas

Bank Myna (Table 8a, Figure 8A) and Brahminy Myna (Table8b, Figure 8B)

Minimal intestinal protein content was recorded during pre-breeding season in Bank myna female (25.452 ±0.371 mg /100 mg wet tissue). Thereafter there was an increase by 20% (32.073 ± 0.332; P<0.0005) during the breeding phase, while significant decrease to 29.925 ± 0.361 mg (P<0.005) during the post-breeding season. During the last phase of the breeding cycle *i.e.* the non-breeding phase, Bank myna females showed rise in intestinal protein

content that was highly significant (32.790 ± 0.217; P<0.0005). In Brahminy myna female, the intestinal protein content was 25.260 ± 2.077 mg /100 mg wet tissue during pre-breeding phase. There was a non-significant rise from pre-breeding to breeding (28.872 ± 0.750), while declined by 13% (25.337 ± 0.475; P<0.005) during the successive phase of the breeding cycle. During non-breeding phase the intestinal protein content in Brahminy myna increased to 28.488 ± 0.379 mg/100 mg wet tissue (P<0.0005).

8.3 KIDNEY

8.3 (a) Male Mynas

Bank Myna (Table 8a, Figure 8A) and Brahminy Myna (Table8b, Figure 8B)

Renal protein content of Bank myna male in pre-breeding state was recorded at 25.027 ± 0.490 mg /100mg wet tissue, which increased by 7% (27.007 ± 0.387) compared to pre-breeding during breeding phase. However during the following season lowest protein content was recorded at 24.488 ± 0.317 mg /100mg wet tissue (P<0.0005), which increased significantly during non-breeding season to 27.570 ± 0.246 mg /100mg wet tissue. In the other species Brahminy myna male 24.479 ± 0.781 mg protein/100mg wet tissue was recorded during pre-breeding phase, which showed a rise (26.810 ± 0.387; P<0.05) during the next phase *i.e.* breeding phase. During post-breeding phase it was significantly low (23.052 ± 0.718)

compared to breeding phase, but increased by 13% (26.572 ± 0.675; P<0.005) during the subsequent non-breeding phase of the breeding cycle.

8.3 (b) Female Mynas

Bank Myna (Table 8a, Figure 8A) and Brahminy Myna (Table 8b, Figure 8B)

Minimum renal protein content were recorded during pre-breeding phase in the females of Bank myna at 25.194 ± 0.526 mg /100mg wet tissue, which increased significantly to 30.235 ± 0.460 mg /100mg wet tissue during breeding phase. During post-breeding and non-breeding phases of the reproductive cycle, 27.560 ± 0.346 mg (P<0.0005) and 31.658 ± 0.560 mg proteins were recorded respectively in the kidney of Bank myna. During pre-breeding phase kidney of Brahminy myna female had 28.021 ±0.797 mg proteins, which showed a non-significant increase to 28.552 ±0.492 mg proteins during breeding season. Thereafter there was a decrease from breeding to post-breeding phase (24.843 ± 0.380; P<0.0005), which was maintained during non-breeding phase (24.788 ± 0.374) in the kidney of Brahminy myna female.

9.TOTAL LIPID

9.1 LIVER

9.1 (a) Male Mynas

Bank Myna (Table 9a, Figure 9A) and Brahminy Myna (Table 9b, Figure 9B)

Hepatic total lipid content during the pre-breeding phase, of Bank Myna male was at 7.083 ± 0.359 mg/ 100 gm of wet tissue, which increased non-significantly (10.366 ± 2.161) in the breeding phase while, total lipid content diminished significantly to 3.183 ± 0.323 mg ($P<0.005$) during the post-breeding phase but showed an increase during non-breeding phase to 8.633 ± 4.260 mg ($P<0.0005$). Total lipid content in the Brahminy myna male during pre-breeding was at 8.717 ± 0.399 mg/ 100 gm of wet tissue. During Breeding phase, a non-significant rise (12.160 ± 1.939) compared to pre-breeding phase was recorded, which declined (1.400 ± 0.001; $P<0.0005$) during the next phase (post-breeding) of the breeding cycle while, increased by 72% (5.160 ± 0.382) during non-breeding phase.

9.1 (b) Female Mynas

Bank Myna (Table 9a, Figure 9A) and Brahminy Myna (Table 9b, Figure 9B)

The hepatic total lipid content was at 7.950 ± 0.136 mg /100 gm of wet tissue, during pre-breeding phase in female Bank myna which increased significantly (9.550 ± 0.189; P<0.0005) during the breeding phase while diminished by 66% (5.750 ± 1.320; P<0.05) during post-breeding phase and exhibited a non-significant rise by 23% (7.450 ± 0.521) in the following phase (non-breeding) of the reproductive cycle. In Brahminy myna hepatic total lipid content during pre-breeding phase were at 8.713 ± 0.479 mg/ 100 gm of wet tissue, which dropped significantly during breeding season to 2.933 ± 0.79 (P<0.0005) mg/ 100 gm of wet tissue. During post-breeding phase this was maintained at (2.000 ± 0.365), which increased by 69% (6.4 ± 0.856; P<0.0005) in the following non-breeding phase of the breeding cycle.

9.2 INTESTINE

9.2 (a) Male Mynas

Bank Myna (Table 9a, Figure 9A) and Brahminy Myna (Table 9b, Figure 9B)

Intestinal total lipid content during pre-breeding phase of Bank myna male was 8.233 ± 0.376 mg /100 gm of wet tissue, which diminished significantly in the following breeding phases by 48% (5.566 ± 0.361; P<0.0005) and post-breeding phases (4.116 ± 0.142)

respectively. Thereafter there was rise (8.4 ± 0.543) in intestinal total lipid content during the non-breeding phase of the male Bank myna. Total lipid content in the intestine of male Brahminy myna was at 7.800 ± 0.252 mg /100 gm of wet tissue during the pre-breeding season, which exhibited a rise during the following season (breeding) by 11% (8.85 ± 0.128; $P<0.005$) but a significant decline (7.2 ± 0.47.5; $P<0.005$) which was maintained at 8.1 ± 0.632 mg /100 gm of wet tissue in the last season of the cyclic reproductive phenomenon.

9.2 (b) Female Mynas

Bank Myna (Table 9a, Figure 9A) and Brahminy Myna (Table 9b, Figure 9B)

In female Bank myna, the total lipid content in intestine during the pre-breeding phase was 5.483 ± 0.243 mg /100 gm of wet tissue. This increased significantly (6.733 ± 0.461; $P<0.05$) during the breeding phase but decreased (4.766 ± 0.117; $P<0.005$) during post-breeding phase and rose again significantly (10.833 ± 0.749) in the subsequent non-breeding phase of the reproductive cycle. Intestinal lipid content of Brahminy myna female was 8.050 ± 0.138 mg /100 gm of wet tissue during the pre-breeding, which diminished significantly 2.666 ± 0.715; $P<0.0005$ in breeding phase. During post-breeding, there was a rise by 65% (7.666 ± 0.709; $P<0.0005$) from breeding phase and it increased (9.566 ± 0.128; $P<0.05$) further during the non-breeding phase of the breeding cycle.

9.3 KIDNEY

9.3 (a) Male Mynas

Bank Myna (Table 9a, Figure 9A) and Brahminy Myna (Table 9b, Figure 9B)

The kidney of Bank myna showed 6.3 ± 0.184 mg /100 gm of wet tissue during pre-breeding phase, that increased significantly (7.056 ± 0.361; $P<0.05$) during the following breeding phase and diminished by 83% (3.866 ± 0.422; $P<0.0005$) during post-breeding phase but showed a rise by 36% (6.083 ± 0.353; $P<0.005$) in the last phase of the breeding cycle. During pre-breeding phase, the lipid content in kidney of male Brahminy Myna was 8.050 ± 0.112 mg /100 gm of wet tissue, which increased (8.667 ± 0.280; $P<0.05$) during the following breeding phase. Thereafter total renal lipid content diminished significantly (3.833 ± 0.307; $P<0.0005$) during post-breeding phase and increased significantly to 5.550 ± 0.001 mg /100 gm of wet tissue during the non-breeding phase of the cyclic phenomenon.

9.3 (b) Female Mynas

Bank Myna (Table 9a, Figure 9A) and Brahminy Myna (Table 9b, Figure 9B)

The kidney of female Bank myna had 8.183 ± 0.142 mg total lipid /100 gm of wet tissue during pre-breeding phase which increased (10.550 ± 1.895) non-significantly during breeding season but declined significantly (4.033 ± 0.001; $P<0.005$) during post-breeding phase compared to breeding season while exhibited a rise (5.880 ± 0.444; $P<0.005$) during the consecutive non-breeding phase of Bank myna female. In female Brahminy myna, the total lipid content of the kidney during pre-breeding phase was recorded at 7.517 ± 0.549 mg /100 gm of wet tissue. There was a non-significant rise (8.566 ± 0.397) from pre-breeding phase to breeding phase, which declined (2.967 ± 0.169; $P<0.0005$) in the progressive post-breeding phase of the breeding cycle and during non-breeding phase increased again to 4.350 ± 0.217 mg /100gm wet tissue.

10. CHOLESTROL

10.1 LIVER

10.1 (a) Male Mynas

Bank Myna (Table 10a, Figure 10A) and Brahminy Myna (Table 10b, Figure 10B)

The variation in hepatic cholesterol level of Bank myna male exhibited a increasing trend from pre – breeding (0.165 ± 0.010) to breeding phase (0.317 ± 0.022; P < 0.0005) and declining trend from breeding to post - breeding phase by 94% (0.163 ± 0.004; P < 0.0005). During non-breeding phase was maintained at 0.197 ± 0.006 mg /100mg wet tissue. The other species Brahminy myna had 0.147 ± 0.003 mg /100mg wet tissue cholesterol level in the liver during pre - breeding season. There was a significant rise from pre - breeding to breeding phase (0.243 ± 0.017; P<0.0005) but a decreased by 40% (0.173 ± 0.007) during post – breeding phase and significant rise (0.227 ± 0.025; P<0.005) in the last phase of the breeding cycle.

10.1 (b) Female Mynas

Bank Myna (Table 10a, Figure 10A) and Brahminy Myna (Table 10b, Figure 10B)

Hepatic cholesterol content during pre – breeding phase of Bank myna was at 0.167 ± 0.006 mg /100mg wet tissue, which increased significantly (0.303 ± 0.007; $P < 0.0005$) in the subsequent phase. In the next reproductive phase *i.e.* post – breeding phase, cholesterol level declined (0.167 ± 0.007) significantly with a subsequent rise by 14% (0.195 ± 0.005) in the quiescent phase (non-breeding) of the Bank myna. In the Brahminy myna female cholesterol content was 0.268 ± 0.018 mg /100mg wet tissue, during the pre - breeding season, which diminished non-significantly during breeding (0.230 ± 0.015) and declined further during post – breeding phase (0.180 ± 0.007) at the end of the cycle the cholesterol level increased (0.188 ± 0.006) from post - breeding to non-breeding season of the reproductive cycle.

10.2 INTESTINE

10.2 (a) Male Mynas

Bank Myna (Table 10a, Figure 10A) and Brahminy Myna (Table 10b, Figure 10B)

The intestinal cholesterol level during pre – breeding phase of Bank myna was at 0.118 ± 0.004 mg /100mg wet tissue, which increased to 0.165 ± 0.008 mg /100 mg wet tissue during the

subsequent breeding phase. During post – breeding phase it dropped to 0.061 ± 0.014 mg/100mg wet tissue, with a subsequent rise (0.100 ± 0.003; $P < 0.05$). In this species, the cholesterol content was at 0.073 ± 0.004 mg /100mg wet tissue during pre - breeding season, which increased significantly (0.127 ± 0.008; $P < 0.0005$) from pre - breeding to breeding phase. In the other species, the cholesterol level was maintained (0.117 ± 0.006) and (0.143 ± 0.007) during non-breeding season of this species.

10.2 (b) Female Mynas

Bank Myna (Table 10a, Figure 10A) and Brahminy Myna (Table 10b, Figure 10B)

Intestinal cholesterol levels was recorded at 0.126 ± 0.011 mg /100mg wet tissue, during pre – breeding phase of female Bank myna which dropped (0.043 ± 0.021) significantly from pre - breeding to breeding phase. Thereafter, it exhibited a non-significant rise from breeding phase to post – breeding phase (0.121 ± 0.015) to non-breeding (0.130 ± 0.005) phases of the reproductive cycle. Minimum cholesterol content was recorded during pre-breeding phase in female Brahminy myna, which increased (0.153 ± 0.013; $P<0.0005$) significantly from pre - breeding to breeding. During post-breeding phase it diminished by 33% (0.115 ± 0.006; $P < 0.05$) while during non-breeding phase increased to 0.132 ± 0.003 mg/100mg wet tissue, in this species.

10.3 KIDNEY

10.3 (a) Male Mynas

Bank Myna (Table 10a, Figure 10A) and Brahminy Myna (Table 10b, Figure 10B)

Renal cholesterol level, during pre - breeding phase was recorded at 0.172 ± 0.006 mg /100mg wet tissue, which increased by 25%(0.228 ± 0.008; $P < 0.0005$) during breeding season but dropped significantly during post - breeding phase compared to breeding phase and was maintained from post – breeding phase (0.088 ±0.018; $P<0.0005$) to non-breeding phase (0.091 ± 0.001) of the cyclic reproductive phenomenon. Cholesterol level of Brahminy myna male was at 0.420 ± 0.042 mg /100mg wet tissue during pre – breeding phase, which declined significantly during breeding phase (0.207 ± 0.011; $P<0.0005$) to post – breeding phase (0.143 ± 0.010; $P<0.005$). At the end of cycle, during non-breeding season, there was a non-significant 6% rise (0.152 ± 0.006) from the previous post - breeding season of the reproductive cycle.

10.3 (b) Female Mynas

Bank Myna (Table 10a, Figure 10A) and Brahminy Myna (Table 10b, Figure 10B)

In Bank myna female the renal cholesterol level was at 0.149 ± 0.005 mg /100mg wet tissue, during the pre - breeding phase, which was maintained at (0.157 ± 0.004) during the next season. Minimum cholesterol content was recorded during post - breeding phase of the Bank myna at 0.115 ± 0.008 mg /100mg wet tissue ($P<0.0005$) while was again maintained at 0.133 ± 0.008 during non-breeding phase. Cholesterol content in kidney of Brahminy myna female during the initial phase of reproduction was at 0.242 ± 0.043 mg /100mg wet tissue, which diminished by 15% (0.210 ± 0.005) during breeding phase and by 64% (0.128 ± 0.011; $P < 0.0005$) during post - breeding phase. During quiescent phase (non-breeding) there was an increase (0.167 ± 0.031) in cholesterol content in female Brahminy Myna.

Table 1: **Seasonal variations in Glycogen content (mg glycogen/100mg wet tissue) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	2.292^{c} ±0.078	0.220^{c} ±0.004	0.228^{c} ±0.006	1.123^{c} ±0 004	0.198^{c} ±0.011	0.180^{c} ±0 005
BR	1.865^{ax} ±0.073	0.242^{cz} ±0.003	0.247^{cx} ±0.003	1.175^{cz} ±0.004	0.156^{cy} ±0.003	0.205^{cx} ±0.007
PO-BR	1.446^{br} ±0.046	0.120^{br} ±0.001	0.109^{r} ±.001	1.018^{r} ±0.003	0.115^{r} 0.008	0.106^{r} 0.002
NON-BR	1.630 0.022	0.128 ±0.002	0.107 ±0.001	1.031 ±0.012	0.119 ±0.001	0.107 ±0.001

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	2.140^{c} ±0.005	0.172^{c} ±0.002	0.162^{c} ±0.001	2.160^{c} ±0.004	0.176^{c} ±0.001	0.165^{c} ±0.001
BR	1.062^{cz} ±0.001	0.152^{cz} ±0.003	0.143^{z} ±0.001	1.067^{cz} ±0.002	0.149^{cz} ±0.001	0.157^{cz} ±0 001
PO-BR	$1\ 096^{bq}$ ±0.009	$0\ 137^{q}$ ±0 003	0.120^{cr} ±0 001	1.065^{c} ±0 001	0.145^{c} ±0.001	$0\ 135^{cr}$ ±0 001
NON-BR	1.127 ±0.003	0 140 ±0.001	0.139 ±0 003	1.129 ±0 002	0.161 ±0 001	0.145 ±0 001

PRE-BR – Pre-breeding; **BR** – Breeding, **PO-BR** – Post-breeding; **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 2: **Seasonal variations in Glycogen Phosphorylase content (µg of phosphate released/mg protein/30 min/40°C) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	20.562^{C} ±0.465	$24\ 115^{c}$ ±0.565	18.800^{c} ±0.356	$26\ 518^{c}$ ±0.268	$21\ 500^{c}$ ±0.447	21.367^{a} ±0.805
BR	$23\ 640^{bz}$ ±0.785	23.677^{cr} ±0.574	14.225^{az} ±0.552	19.800^{z} ±0.349	25.141^{cx} ±0.625	18.821^{x} ±0.269
PO-BR	26.287^{br} ±0.325	28.380^{cr} ±0.343	16.298^{c} ±0.426	23.690^{cr} ±0.201	25.450^{cq} ±0.378	21.893^{cr} ±0.329
NON-BR	24.933 ±0.296	26.265 ±0.228	13.045 ±0.306	20.546 ±0.238	21.365 ±0.471	19.136 ±0.406

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	20.982^{a} ±0.446	17.936^{c} ±0.388	17.576^{a} ±0.278	23.428 ±0.692	22.720 ±0.733	21.892^{a} ±2.360
BR	25.947^{cz} ±0.851	22.336^{cz} ±0.635	20.307^{cz} ±0.371	24.473^{a} ±1.528	24.293^{c} ±0.542	23.148^{c} ±0.403
PO-BR	$18\ 462^{cp}$ ±0.295	$26\ 007^{ar}$ ±0.523	18.763^{bp} ±0.462	21.533^{aq} ±0.632	$25\ 202^{b}$ ±1.015	18.585^{br} ±0.4
NON-BR	19 432 ±0.809	24.527 ±0.307	15 688 ±0.603	19.988 ±0.307	21.48 ±0.616	16.421 0.304

PRE-BR – Pre-breeding, **BR** – Breeding, **PO-BR** – Post-breeding, **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 3: **Seasonal variations in Glucose 6-Pase content (μg of phosphate released/mg protein/15 min/40°C) in Liver of (a) Bank myna and (b) Brahminy myna both in males and females over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE	FEMALE
	TISSUE – LIVER	
PRE-BR	1.122^{c} ±0.079	$3\ 495^{b}$ ±0.155
BR	2.783^{bz} ±0.115	1.830^{cz} ±0.256
PO-BR	4.224^{cr} ±0.205	5.240^{cr} ±0.132
NON-BR	3.232 ±0.077	4.202 ±0.135

(b) Brahminy Myna

SEASONS	MALE	FEMALE
	TISSUE – LIVER	
PRE-BR	$0\ 439^{c}$ ±0 177	1.082 ±0.080
BR	2.617^{cz} ±0.168	2.698^{cz} ±0.134
PO-BR	1.8 ±0.048	1.593^{r} ±0.076
NON-BR	1 643 ±0 054	1.215 ±0.065

PRE-BR – Pre-breeding; **BR** – Breeding, **PO-BR** – Post-breeding; **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 4: **Seasonal variations in Succinate dehydrogenase (SDH) content (µg of formazan formed/mg protein/30 min 40°C) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	3.444 ±0.435	6.565 ±0 163	1.795 ±0.193	4.951 ^{a} ±0.605	5.593 ^{a} ±0.239	5.913 ^{c} ±0.427
BR	4.862 ^{x} ±0.442	5.632 ^{y} ±0.158	1.057 ^{by} ±0.136	2.697 ^{y} ±0.223	6.556 ^{cx} ±0.473	2.630 ^{z} ±0.501
PO-BR	6.298 ^{p} ±0.572	7.240 ^{r} ±0.246	2.558 ^{ar} ±0.272	4.828 ^{cr} ±0.344	7.641 ^{c} ±0.456	3.794 ^{a} ±0.576
NON-BR	5.408 ±0.230	2.560 ±0.294	1.865 ±0.213	2.965 ±0.219	3.934 ±0.493	2.350 ±0.172

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	4.247 ±0.322	5.830 ^{a} ±0.666	5.196 ^{c} ±0.387	4.987 ^{a} ±0.484	5.682 ^{c} ±0.130	4 595 ^{a} ±0.293
BR	6.406 ^{a} ±1.199	7 284 ^{b} ±0.920	5.680 ^{c} ±0.295	7 317 ^{cy} ±0 460	8.227 ^{cz} ±0.219	6.738 ^{cz} ±0.213
PO-BR	5.350 ^{c} ±0 198	8 120 ^{a} ±0.119	2.813 ^{r} ±0.262	3.053 ^{r} ±0.189	9.133 ^{p} ±0.351	5.657 ^{a} ±0.347
NON-BR	3.683 ±0 129	7.402 ±0.209	2 375 ±0.086	3.890 ±0.377	8.917 ±0.185	5 250 ±0.081

PRE-BR – Pre-breeding; **BR** – Breeding; **PO-BR** – Post-breeding; **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 5: **Seasonal variations in ATPase content ((µg of phosphate released/mg protein/10 min 40°C) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	143.617^{b} ±0.287	144.790 ±0.410	134.493 ±0.307	145.325^{c} ±0.474	147.312^{a} ±0.792	146.523^{c} ±0.367
BR	145.258^{c} ±0.351	143.812$^{b\lambda}$ ±0.281	131.537^{cz} ±0.360	140.982^{z} ±0.403	149.992$^{c\lambda}$ ±0.346	141.652^{bz} ±0.302
PO-BR	147.640^{cr} ±0.207	147.992^{cr} ±0.423	135.010^{r} ±0.626	145.043^{cr} ±0.429	150.543^{c} ±0.348	144.480^{cr} ±0.299
NON-BR	141.413 ±0.617	144.462 ±0.524	133.963 ±0.322	141.282 ±0.453	145.523 ±0.232	139.928 ±0.322

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	142.783^{a} ±0.483	148.747^{a} ±0.257	123 552^{c} ±0.475	143.310 ±0.641	149.503^{a} ±0 425	125.253^{a} ±1.303
BR	151.520^{cz} ±0.399	154.447^{cz} ±0.343	130.540^{cz} ±0.480	153.083^{cz} ±0.410	157.998^{cz} ±0.701	133.368^{cz} ±0.835
PO-BR	140.240^{r} ±0 525	155.245^{c} ±0.413	121 467^{ar} ±0 509	141.388^{r} ±0.515	157.007^{c} ±0.406	123.297^{ar} ±0.550
NON-BR	141 497 ±0 401	147.318 ±0.410	119.705 ±0 372	142.317 ±0.530	151.177 ±0.388	121 668 ±0.409

PRE-BR – Pre-breeding; **BR** – Breeding, **PO-BR** – Post-breeding, **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 6: **Seasonal variations in Acid Phosphatase content (µmoles of P-Nitrophenol released/mg protein/30 min 40°C) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE			FEMALE*		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	0 639 ^{c} ±0.007	4.671 ^{c} ±0.246	6.846 ^{c} ±0.402		-	-
BR	1.091 ^{az} ±0.037	3.324 ^{cz} ±0.007	3.187 ^{cz} ±0.092	0.760 ^{b} ±0.053	7.008 ^{c} 0.117	5.836 ^{c} ±0.031
PO-BR	1.716 ^{cr} ±0.064	11.290 ^{cr} ±0.367	4.537 ^{cr} ±0 263	3.394 ^{cr} ±0.059	10.693 ^{cr} ±0.594	7.987 ^{ar} ±0.402
NON-BR	1.209 ±0.052	6 710 ±0 294	1.187 ±0.093	1.516 ±0.179	5.675 ±0.536	6.957 ±0.184

* Due to unavoidable circumstances AcPase of female Bank Myna could not be estimated during pre-breeding season

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	1.547 ^{c} ±0.095	1.902 ^{c} ±0.126	1.350 ^{b} ±0.076	1.614 ±0.025	3.618 ^{b} ±0.207	3.228 ^{c} ±0.247
BR	3.178 ^{cz} ±0.195	2.547 ^{bx} ±0 181	1 939 ^{cz} ±0.098	2.077 ^{bz} ±0.100	5.421 ^{cz} ±0.257	3.649 ^{c} ±0.246
PO-BR	1.818 ^{br} ±0.166	3.999 ^{p} ±0.564	1.535 ^{bp} ±0.109	1.010 ^{cr} ±0.021	6 284 ^{cr} ±0.228	1 940 ^{cr} ±0 075
NON-BR	1.190 ±0.062	3 286 ±0.217	1 007 ±0 054	1 466 ±0 156	2 782 ±0.0.048	1 565 ±0 036

PRE-BR – Pre-breeding, **BR** – Breeding; **PO-BR** – Post-breeding; **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 7: **Seasonal variations in Alkaline Phosphatase content (µmoles of P-Nitrophenol released/mg protein/30 min 40°C) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	0 084 ^{c} ±.004	1.536 ^{c} ±0.021	1.946 ^{c} ±0.074	-	-	-
BR	0.124 ^{cy} ±0.010	1.079 ^{cz} ±0.064	0.943 ^{cz} ±0.055	0.147 ^{a} ±0.020	4.248 ^{c} ±0.226	0.114 ^{c} ±0.007
PO-BR	0.517 ^{cr} ±0.012	3.501 ^{r} ±0.303	1.632 ^{cr} ±0.118	1.273 ^{cr} ±0.119	5.929 ^{cq} ±0.459	1.139 ^{ar} ±0.017
NON-BR	0.198 ±0.011	2.922 ±0.159	0.069 ±0.006	0.255 ±0.032	2.375 ±0.172	0.880 ±0.089

* Due to unavoidable circumstances AlkPase of female Bank Myna could not be estimated during pre-breeding season

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	0.254 ^{c} ±0.008	1.091 ^{c} ±0.010	0.318 ^{a} ±0 011	0.280 ^{c} ±0.007	1.288 ^{a} ±0.123	0.760 ^{c} ±0.012
BR	0.422 ^{cz} ±0.029	1.540 ^{cy} ±0.121	0.714 ^{cz} ±0.046	0.513 ^{cz} ±0.045	2.262 ^{cz} ±0.163	1.423 ^{bx} ±0.285
PO-BR	0 262 ^{cr} ±0 019	2.293 ^{q} ±0.205	0.591 ^{a} ±0 171	0.211 ^{br} ±0.034	3.050 ^{cr} ±0 175	0 523 ^{cq} ±0 031
NON-BR	0.026 ±0 002	2.150 ±0.076	0.252 ±0.007	0.090 ±0.012	1.017 ±0.060	0.215 ±0.004

PRE-BR – Pre-breeding; **BR** – Breeding, **PO-BR** – Post-breeding, **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 8: **Seasonal variations in protein content (mg proteing/100mg wet tissue) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	30.449^{b} ±0.414	27.427^{c} ±0.599	25.027^{c} ±0 490	31.065^{c} ±0.314	25.452^{c} ±0.371	$25\ 194^{c}$ ±0.526
BR	35.828^{cz} ±0.339	30.272^{cz} ±0.482	27.007^{y} ±0.387	34.340^{az} ±0.396	32.073^{cz} ±0.332	30.235^{az} ±0.460
PO-BR	30.383^{cr} ±0.214	28.237^{cr} ±0.217	24.488^{cr} ±0.317	32.33^{cq} ±0.289	29.925^{cq} ±0.361	27.560^{cr} ±0.346
NON-BR	32.327 ±0.361	31.300 ±0.315	27.570 ±0.246	35.338 ±0.249	32 790 ±0.217	31.658 ±0.560

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	28.679 ±0.371	28.642 ±0.399	24.479^{a} ±0.781	28.802^{a} ±1.701	25.260^{b} ±2.077	28.021^{b} ±0.797
BR	32.708^{cz} ±0.743	27.190^{x} ±0 624	26.810^{x} ±0.387	35.630^{cy} ±0.832	28.872^{b} ±0.750	28.552^{c} ±0.492
PO-BR	25.278^{br} ±0 375	25.515^{bp} ±0 323	23.052^{br} ±0 718	23.442^{r} ±1.177	25.337^{cq} ±0.475	$24\ 843^{r}$ ±0.380
NON-BR	27 760 ±0.663	27 832 ±0.426	26.572 ±0.674	25.292 ±0.751	28.488 ±0 379	24 788 ±0 374

PRE-BR – Pre-breeding; **BR** – Breeding; **PO-BR** – Post-breeding; **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 9: **Seasonal variations in Total lipid content (mg /100 g wet tissue) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles**

(a) Bank Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	7.083^{a} ±0.359	8.233 ±0.376	6.300 ±0.184	7.950 ±0.136	5.483^{c} ±0.243	$8\ 183^{c}$ ±0.142
BR	10.366 ±2.161	5.566^{cz} ±0.361	7.056^{ax} ±0.361	9.550^{bz} ±0.189	6.733^{x} ±0.461	10.550^{a} ±1.895
PO-BR	3.183^{cq} ±0.323	4.116^{cq} ±0.142	3.866^{br} ±0.422	5.750^{p} ±1.320	4.766^{cq} ±0.117	4.033^{bq} ±0.001
NON-BR	8.633 ±4.260	8.400 ±0.543	6.083 ±.353	7.450 ±0.521	10.833 ±0.749	5.880 ±0.444

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	8.717^{c} ±0.399	7.800 ±0.252	8.050^{c} ±0.112	8.713^{a} ±0 479	8.050^{c} ±0.138	7.517^{c} ±0.549
BR	$12\ 160^{b}$ ±1.939	8.850^{cy} ±0 128	$8\ 667^{cx}$ ±0 280	2.933^{az} ±0.791	$2\ 666^{cz}$ ±0.715	$8\ 566^{c}$ ±0.397
PO-BR	1.400^{cr} ±0 001	7.200^{q} ±0.475	3.833^{cr} ±0.307	$2\ 000^{c}$ ±0.365	7.666^{ar} ±0 709	2.967^{br} ±0 169
NON-BR	5 160 ±0.382	8.100 ±0 632	5 550 ±0.001	6 400 ±0.856	9.566 ±0.128	4 350 ±0 217

PRE-BR – Pre-breeding, **BR** – Breeding; **PO-BR** – Post-breeding; **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 10: Seasonal variations in Cholesterol content (mg /100mg wet tissue) of Liver, Intestine and Kidney of (a) Bank myna and (b) Brahminy myna over the reproductive cycles

(a) Bank Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	0 165 ^{a} ±0.010	0.118 ^{b} ±0.004	0.172 ^{c} ±0 006	0.167 ^{b} ±0 006	0.126 ±0 011	0.149 ±0 005
BR	0.317 ^{cz} ±0.022	0.165 ^{bz} ±0.008	0 228 ^{cz} ±0.008	0.303 ^{cz} ±0.007	0 043 ^{cy} ±0.021	0 157 ^{a} ±0.004
PO-BR	0.163 ^{cr} ±0.004	0.061 ^{ar} ±0.014	0.088 ^{r} ±0.018	0.167 ^{br} ±0.007	0.121 ^{p} ±0.015	0.115 ^{r} ±0.008
NON-BR	0.197 ±0.006	0.100 ±0.003	0.091 ±0.001	0.195 ±0.005	0.130 ±0.005	0.133 ±0.008

(b) Brahminy Myna

SEASONS	MALE			FEMALE		
	TISSUES					
	LIVER	INTESTINE	KIDNEY	LIVER	INTESTINE	KIDNEY
PRE-BR	0.147 ^{b} ±0.003	0.073 ^{c} ±0.004	0.420 ^{c} ±0.042	0.268 ^{b} ±0.018	0.029 ±0.007 ^{c}	0.242 ±0.043
BR	0.243 ^{z} ±0 017	0.127 ^{bz} ±0.008	0.207 ^{bz} ±0.011	0.230 ^{a} ±0.015	0.153 ^{az} ±0.013	0.210 ±0 005
PO-BR	0.173 ^{aq} ±0.007	0.117 ^{a} ±0.006	0.143 ^{q} ±0 010	0.180 ^{p} ±0.007	0.115 ^{ap} ±0.006	0 128 ^{r} ±0.011
NON-BR	0 227 ±0 025	0 143 ±0 007	0 152 ±0.006	0 188 ±0.006	0.132 ±0.003	0.167 ±0.031

PRE-BR – Pre-breeding, **BR** – Breeding; **PO-BR** – Post-breeding; **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

	P<0 05	P<0 005	P<0 0005
Compared to Non-Br	a	b	c
Pre-Br Vs Br	x	y	z
Br Vs Po-Br	p	q	r

Table 11: Seasonal alterations in body weight (g) of Bank myna and Brahminy myna in over the reproductive cycles

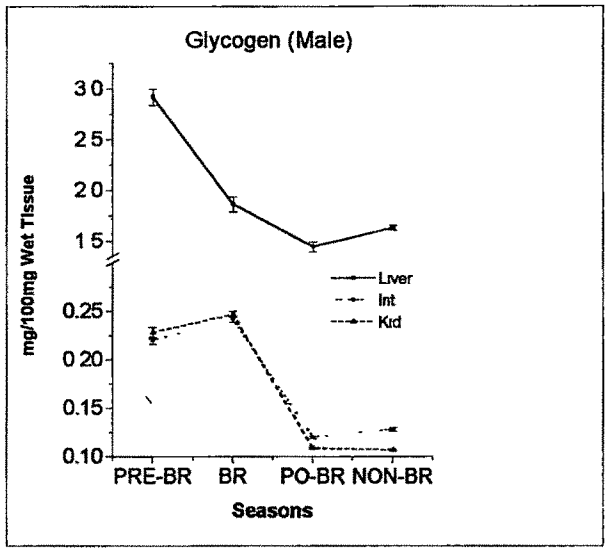
SEASONS	BANK MYNA		BRAHMINY MYNA	
	MALE	FEMALE	MALE	FEMALE
PRE-BR	66.22 ± 1 11	61 50 ± 1.93	41.47 ± 2 9	37.84 ± 2.76
BR	58 5 ± 1.99	52.00 ± 2 86	40.08 ± 1 33	32.38 ± 1.65
PO-BR	56.86 ± 1.19	52.46 ± 0.92	43.45 ± 2 11	37.66 ± 1.65
NBR	62.08 ± 1.101	56.00 ± 1.97	41.5 ± 1.69	39.0 ± 2.70

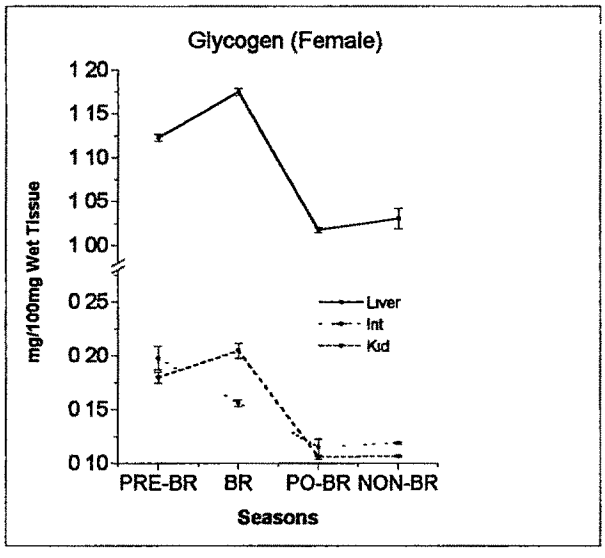
PRE-BR – Pre-breeding, **BR** – Breeding, **PO-BR** – Post-breeding, **NON-BR** – Non-breeding

Values expressed as mean ± SEM of six birds

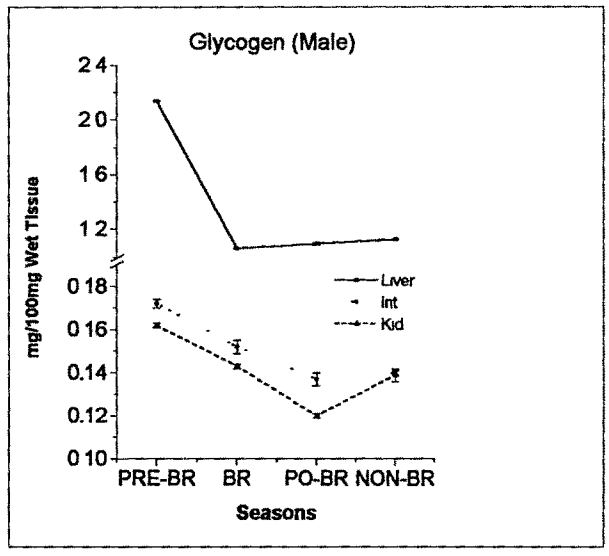
Figure1: Glycogen content in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna



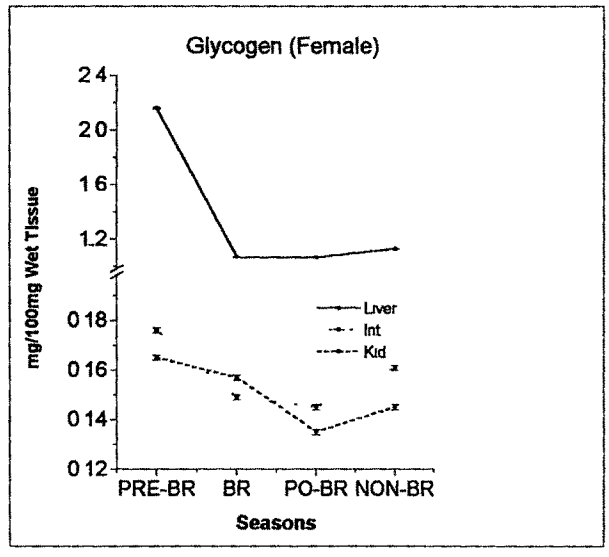
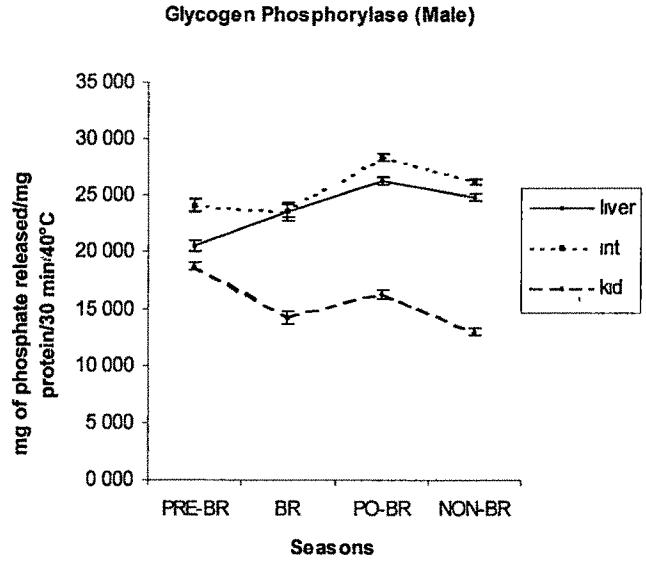
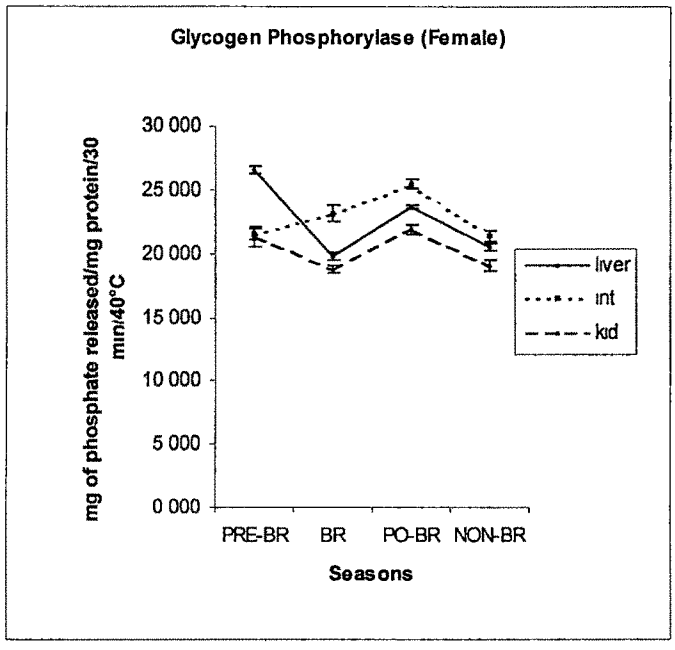


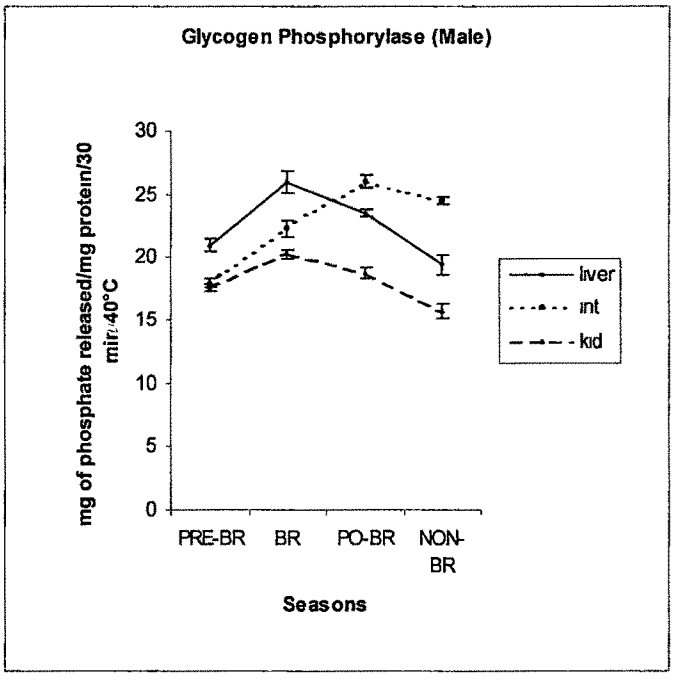
Figure 2: Activity of Glycogen Phosphorylase in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna



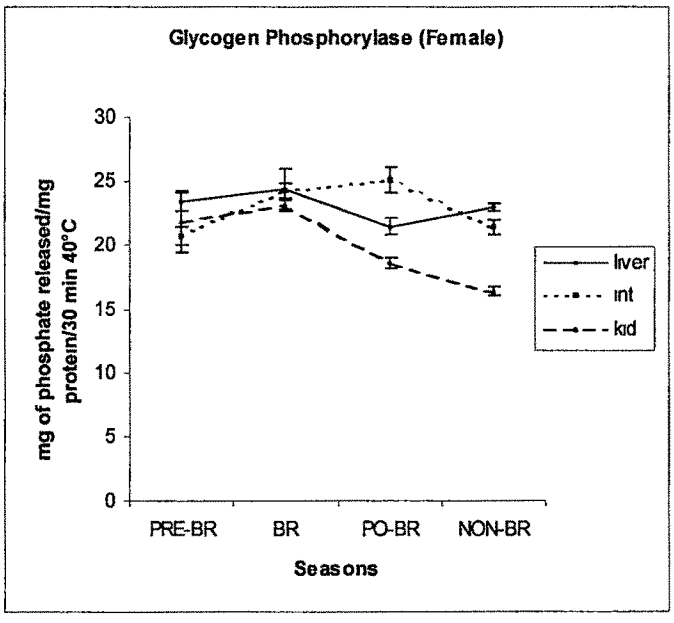
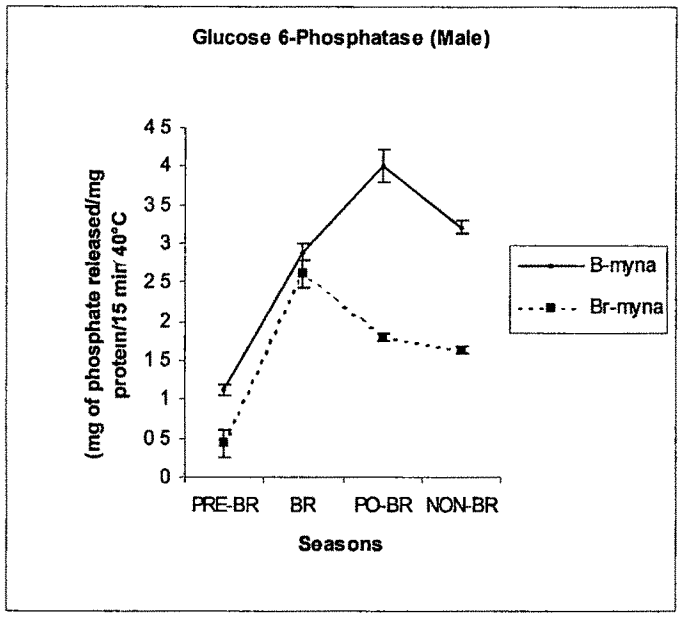


Figure 3: Activity of Glucose 6-Phosphatase in Liver in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Male



(B) Female

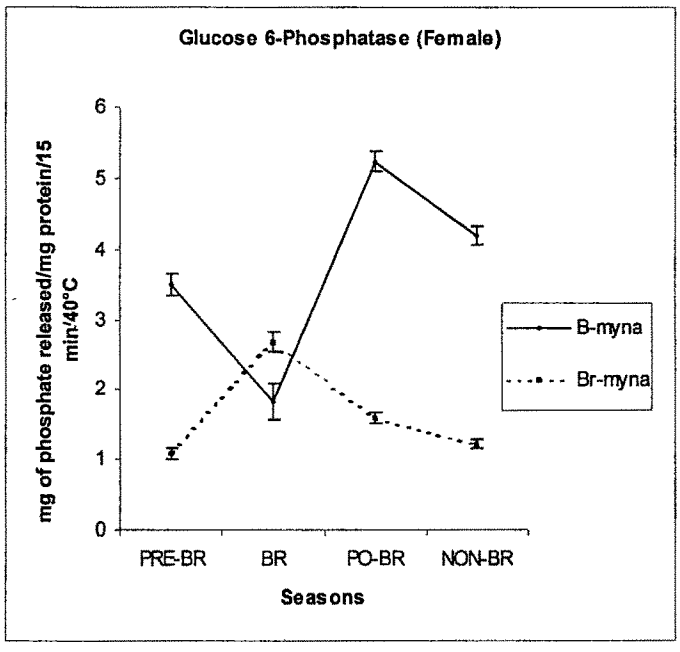
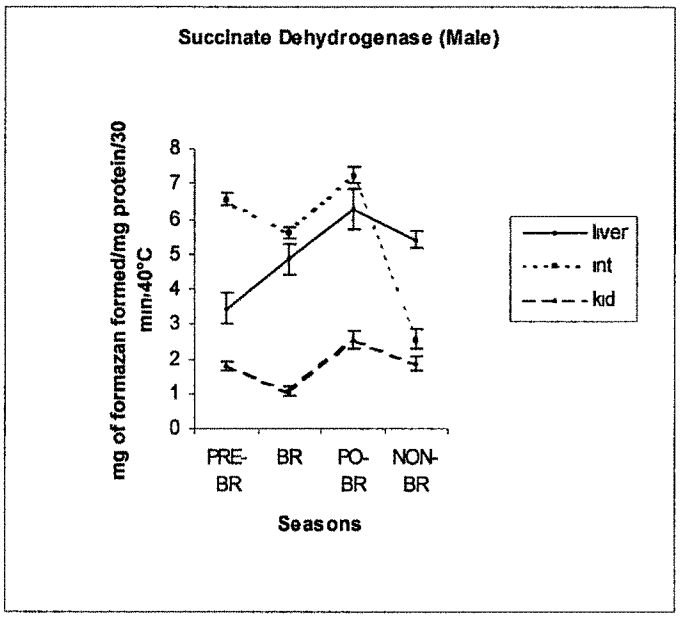
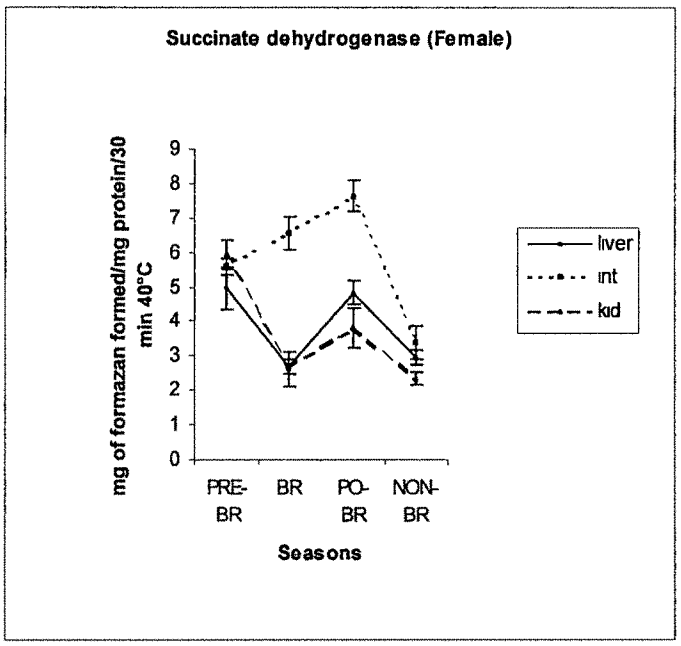


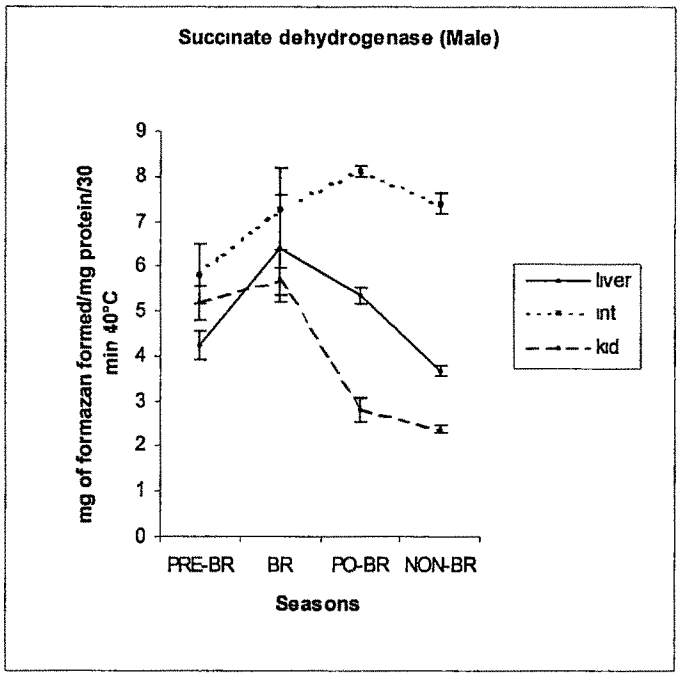
Figure 4: Activity of Succinate Dehydrogenase in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna



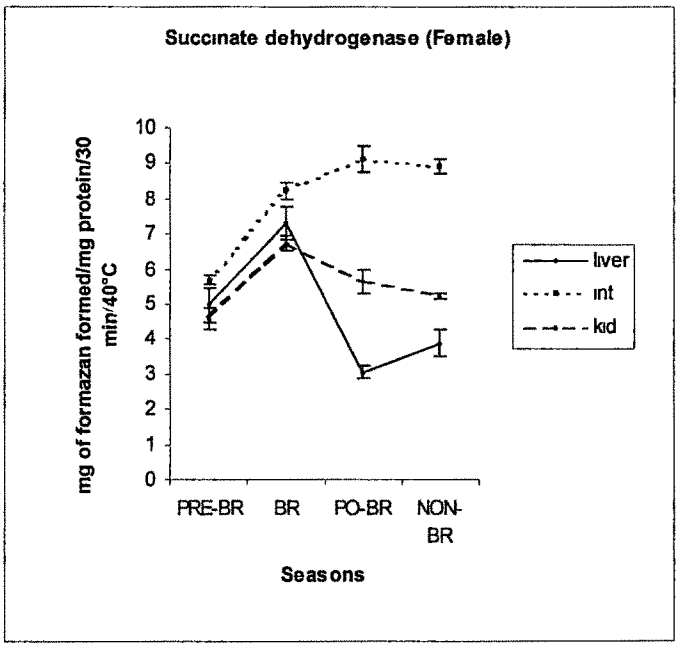
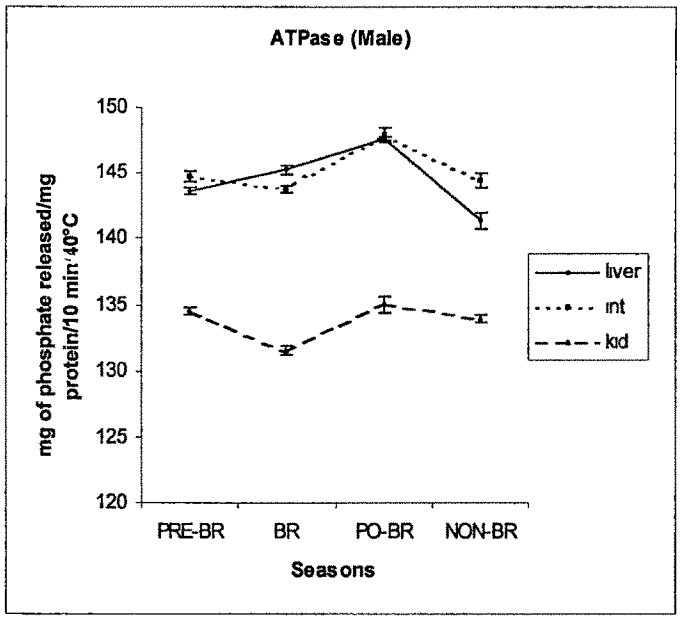
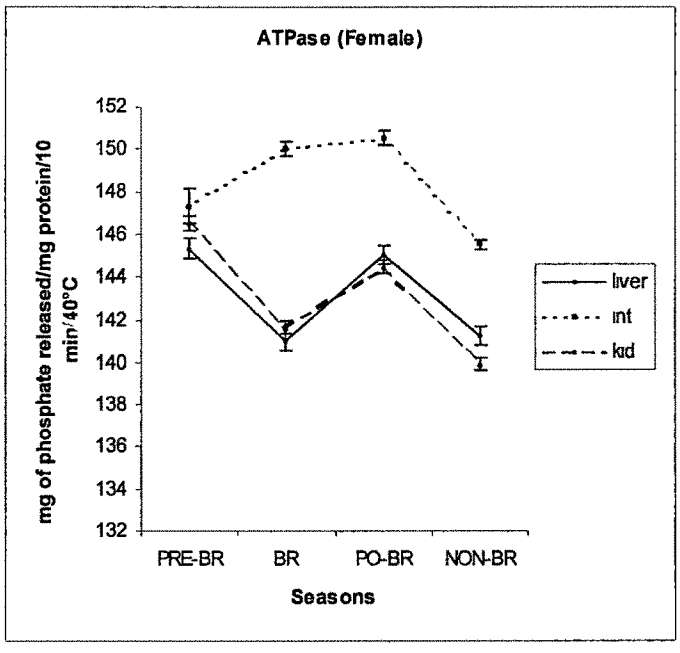


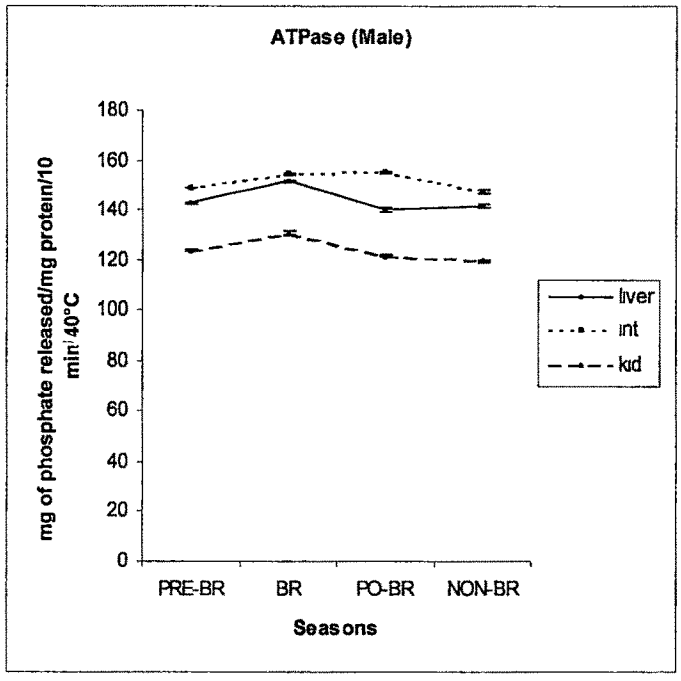
Figure 5: Activity of ATPase in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna



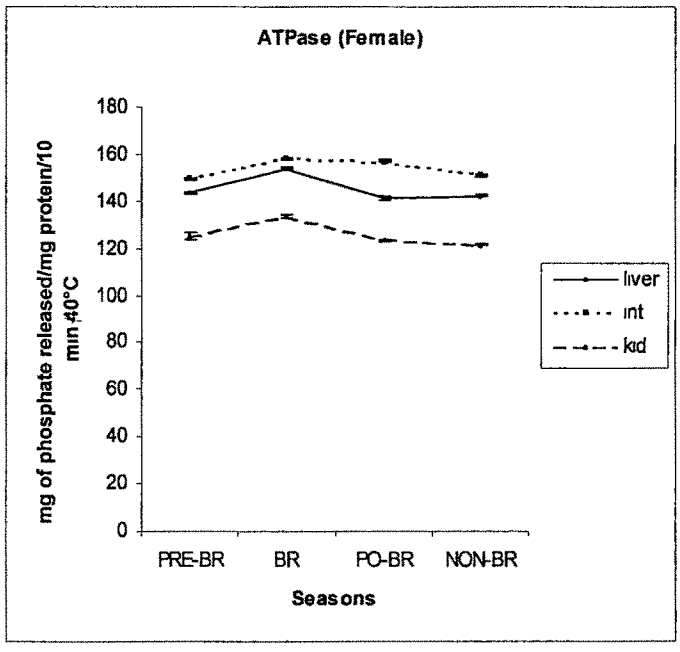
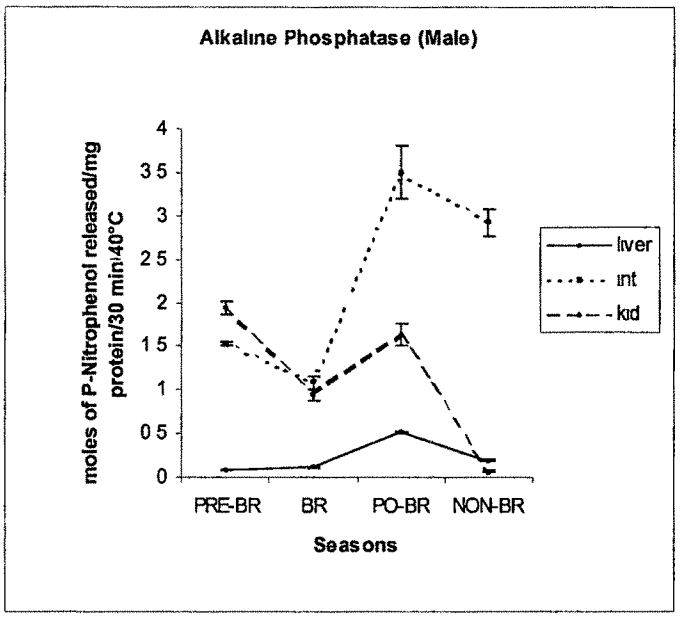
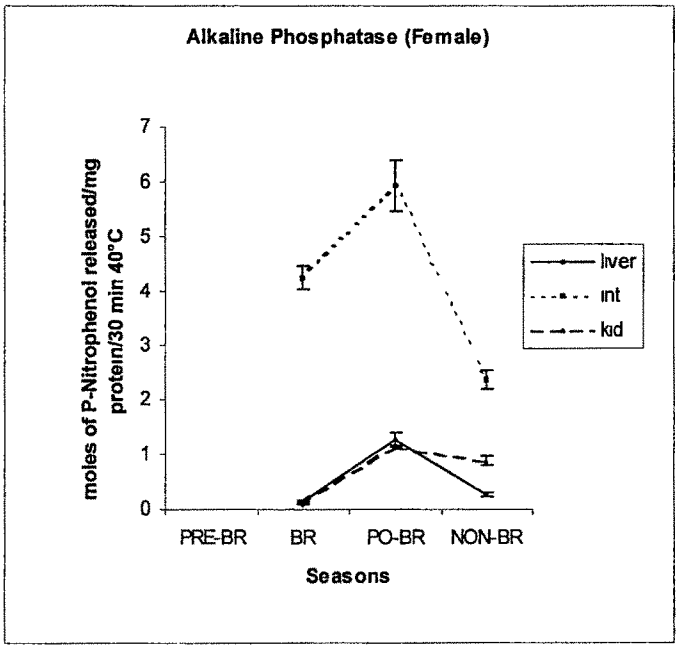


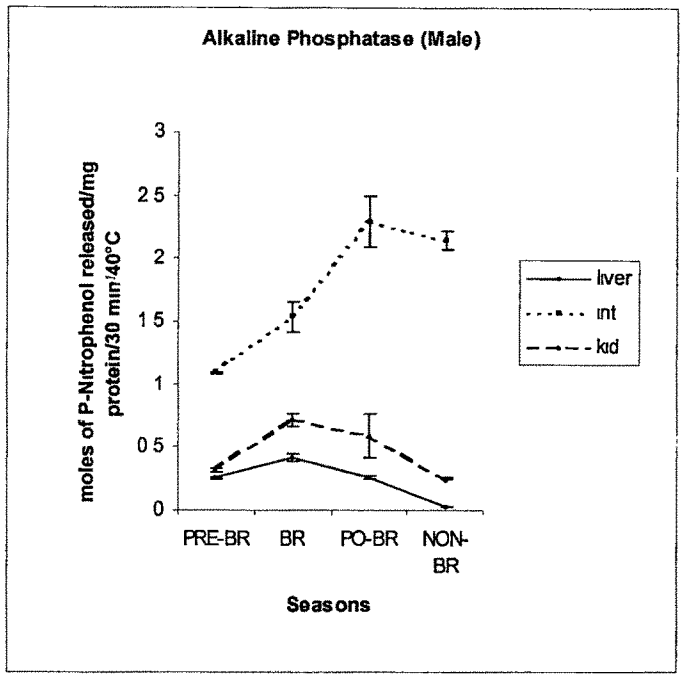
Figure 6: Activity of Acid Phosphatase in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna



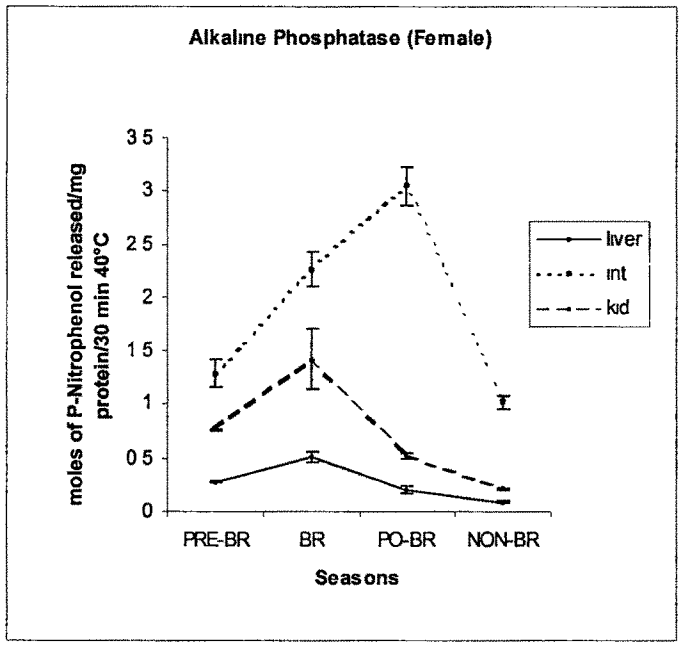
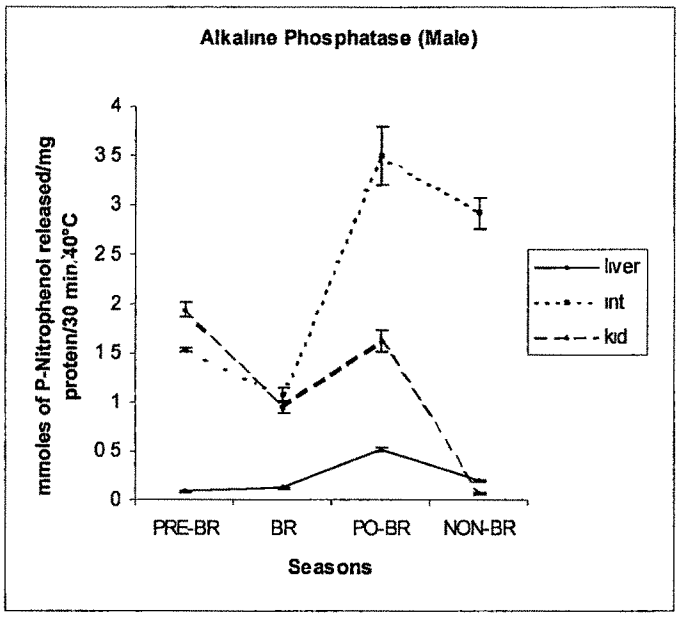
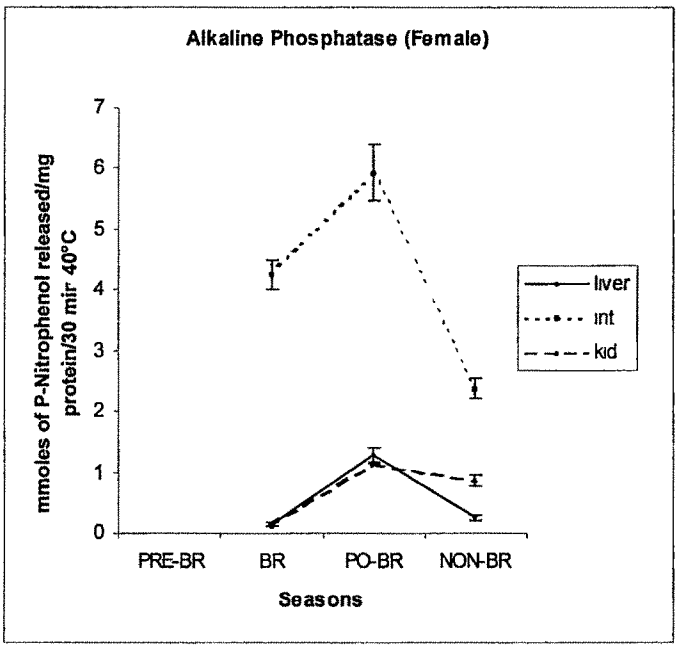


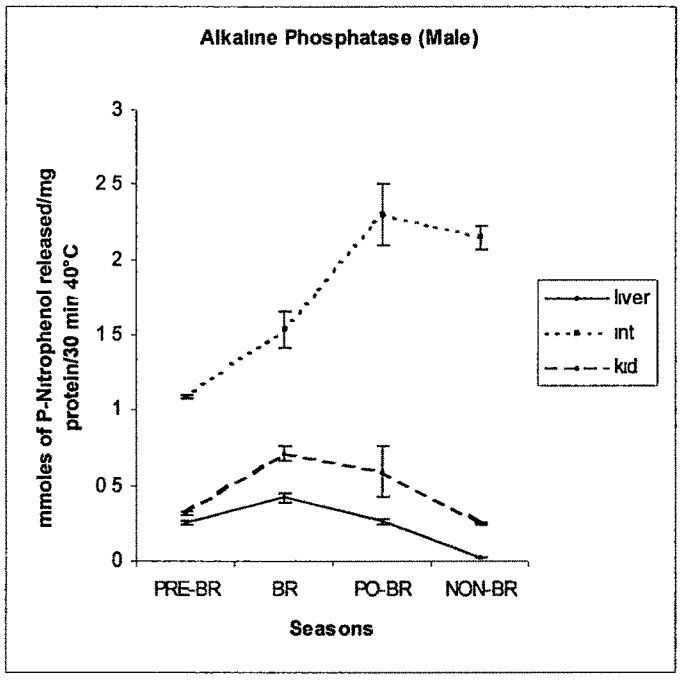
Figure 7: Activity of Alkaline Phosphatase in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna



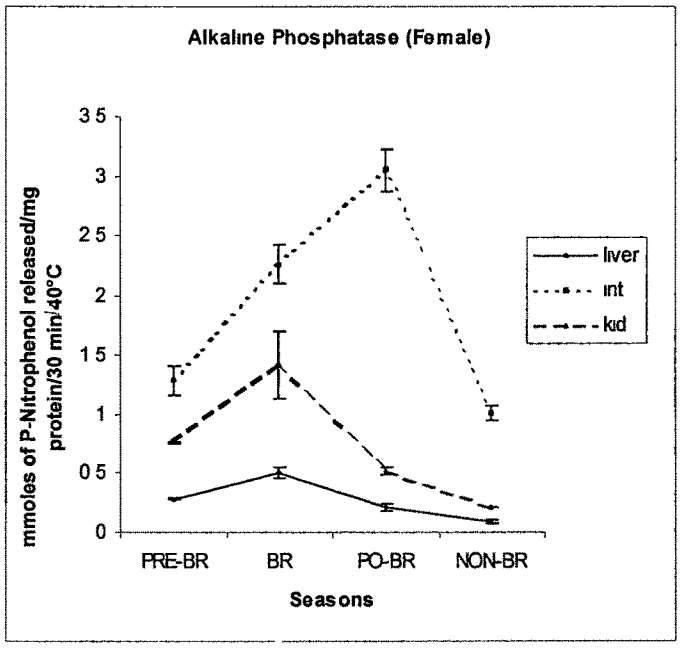
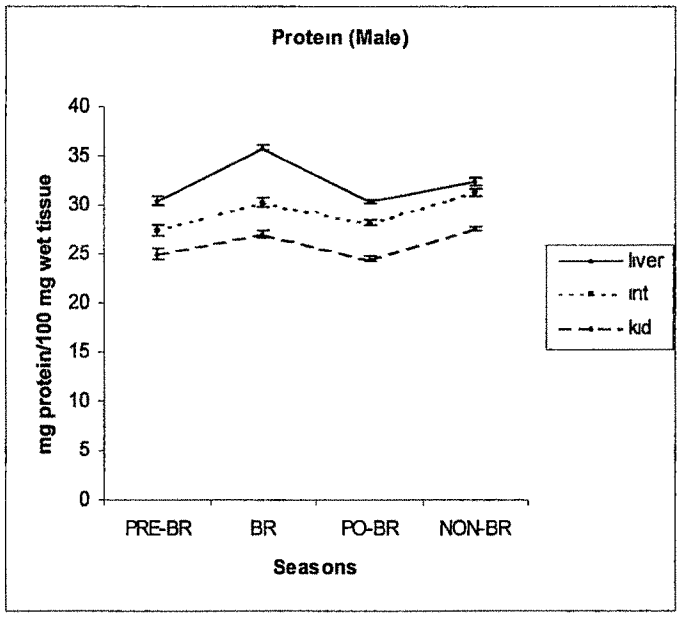
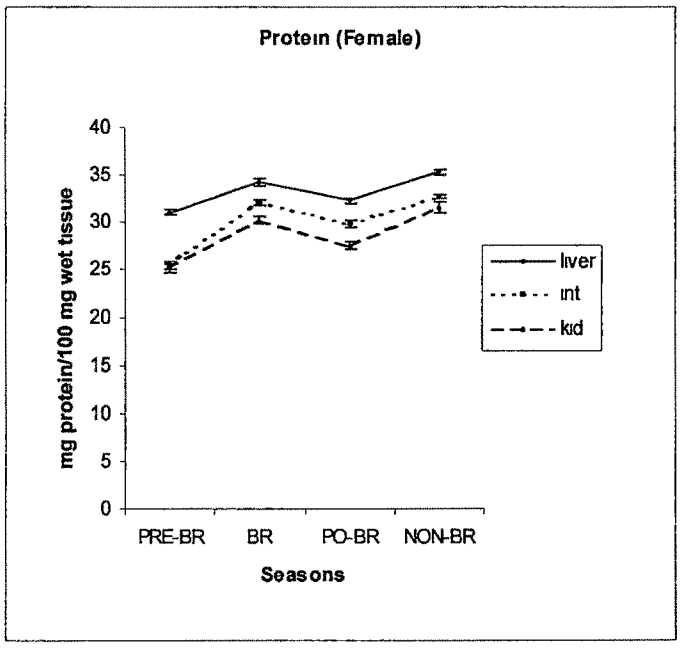


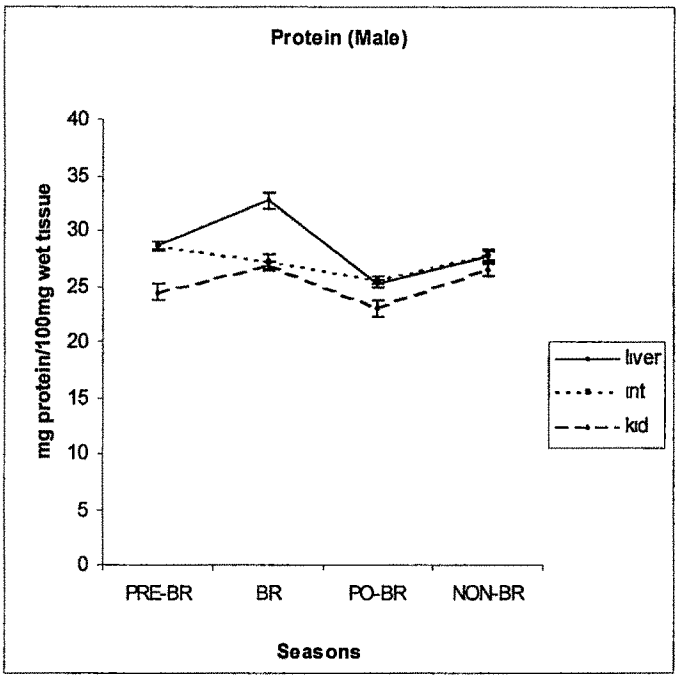
Figure 8: Protein content in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna



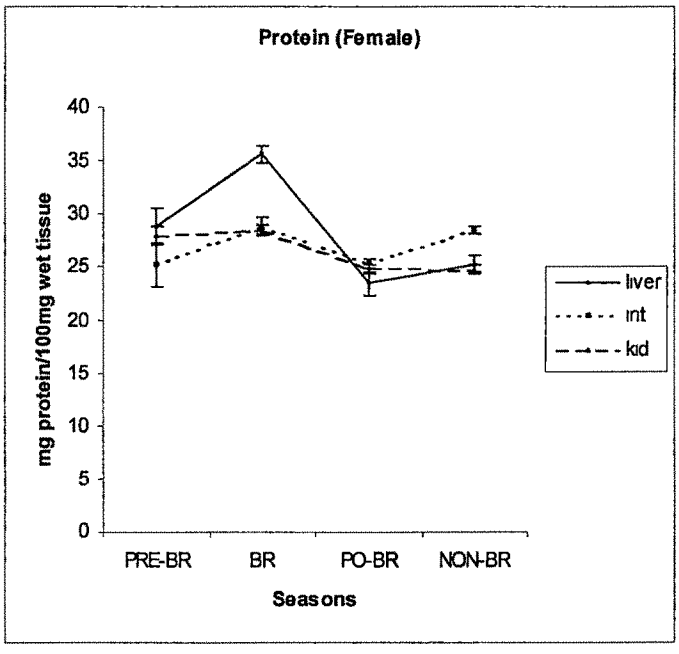
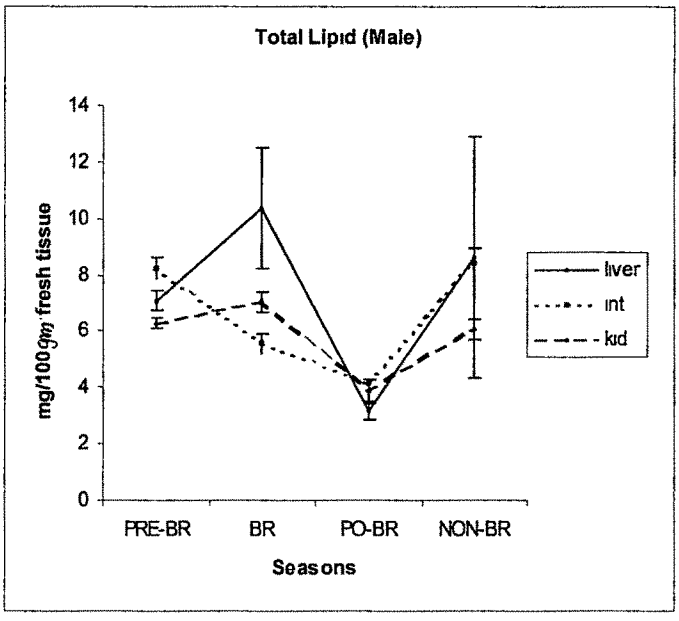
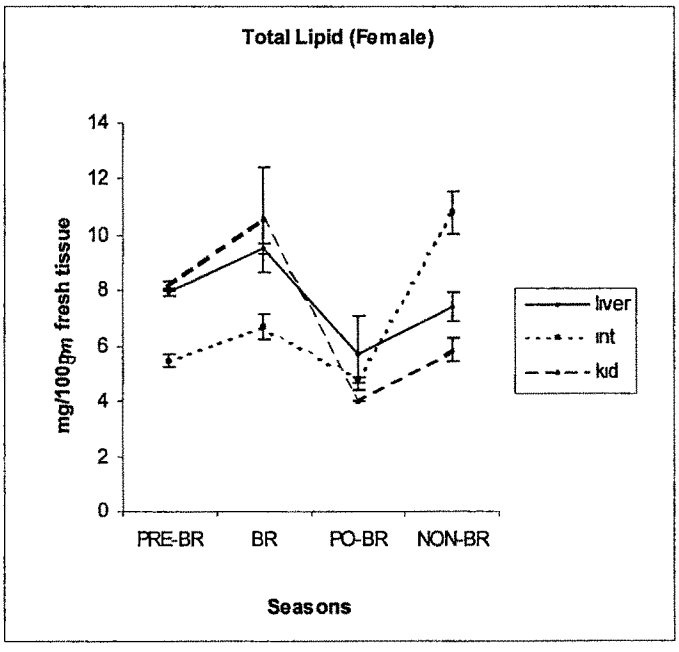


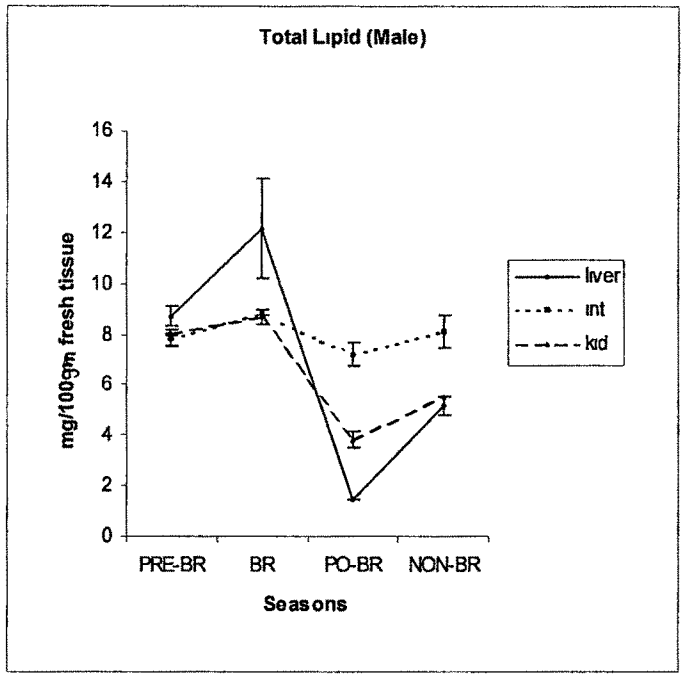
Figure 9: Total Lipid content in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna



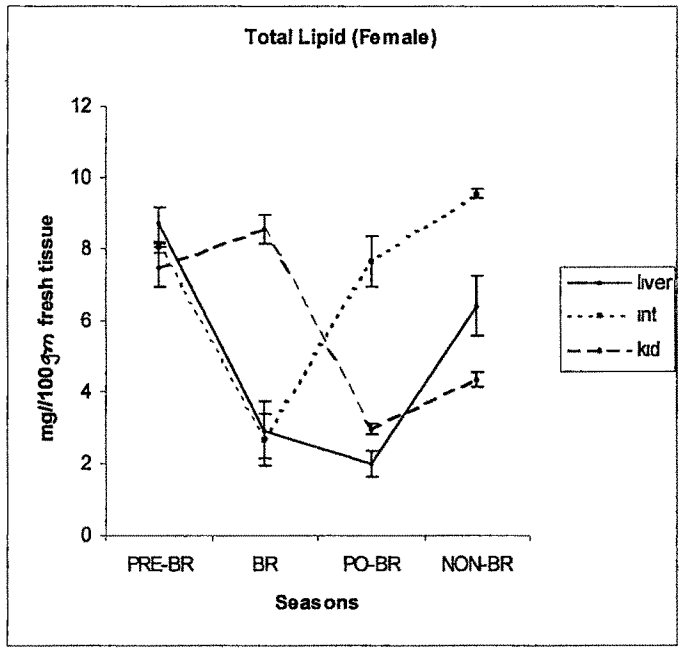
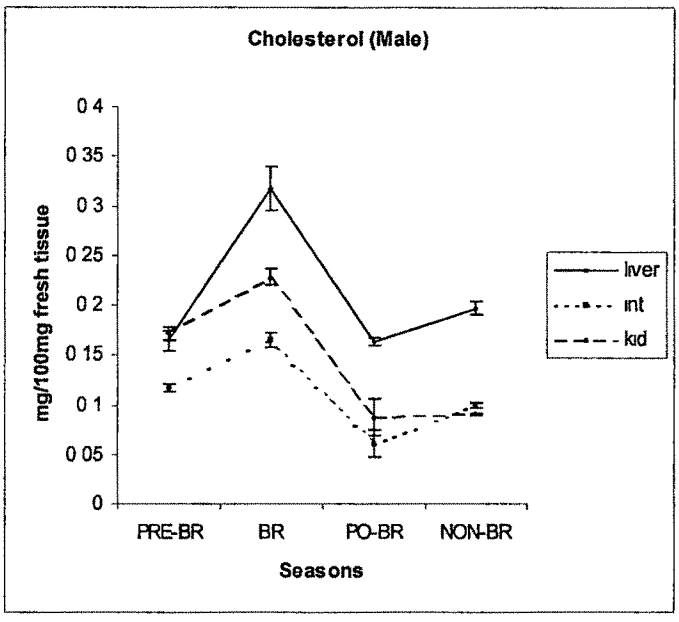
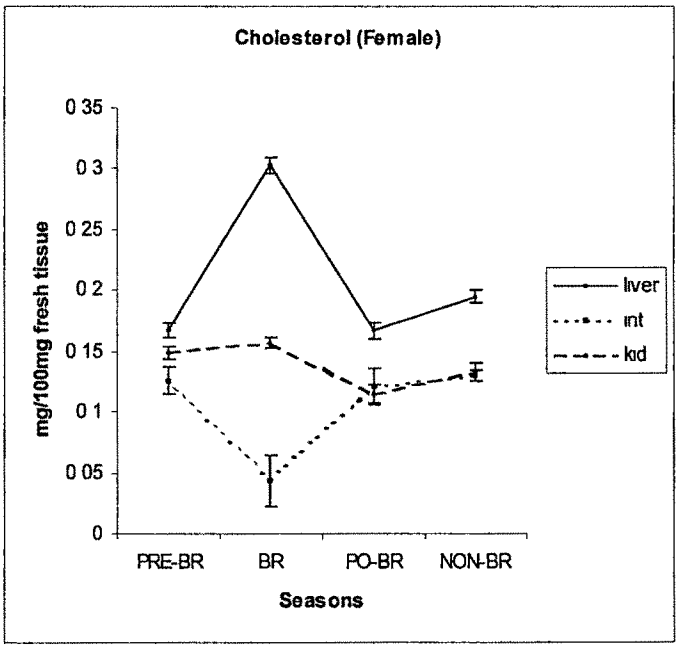


Figure 10: Cholesterol content in Liver, Intestine and Kidney in both the sexes of (A) Bank Myna and (B) Brahminy Myna over the reproductive cycles

(A) Bank Myna





(B) Brahminy Myna